ETHNOBOTANICAL STUDIES ON MEDICINAL PLANTS USED BY YANADI TRIBES OF KAIGAL, CHITTOOR DISTRICT, ANDHRA PRADESH, INDIA

A THESIS TO BE SUBMITTED TO

THE UNIVERSITY OF TRANS-DISCIPLINARY HEALTH SCIENCES AND TECHNOLOGY

FOR THE AWARD OF THE DEGREE OF
M.SC LIFE SCIENCE (SPECIALIZATION PLANT SYSTEMATICS)

BY

CM MANASVI

UNDER THE GUIDANCE OF

DR. NOORUNNISA BEGUM S

THE UNIVERSITY OF TRANS-DISCIPLINARY HEALTH SCIENCES AND TECHNOLOGY

MAY 2023

Private University Established in Karnataka by ACT 35 of 2013
BENGALURU – 560064

DECLARATION BY THE CANDIDATE

I declare that this thesis entitled "**Ethnobotanical studies on Medicinal plants used by Yanadi Tribes of Kaigal, Chittoor District, Andhra Pradesh, India**" submitted for the award of Master Science to THE UNIVERSITY OF TRANS-DISCIPLINARY HEALTH SCIENCES AND TECHNOLOGY, Bengaluru, is my original work, conducted under the supervision of my guide, **Dr. Noorunnisa Begum**. I also wish to inform that no part of the research has been submitted for a degree or examination at any university. References, help and material obtained from other sources have been duly acknowledged.

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Date: May 2023

Name of candidate: CM Manasvi
Reg. No.: 2020MSCR04
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CERTIFICATE

This is to certify that the work incorporated in this thesis **"Ethnobotanical studies on Medicinal plants used by Yanadi Tribes of Kaigal, Chittoor District, Andhra Pradesh, India"** submitted by **CM Manasvi** was carried out under my supervision. No part of this thesis has been submitted for a degree or examination at any university. References, help and material obtained from other sources have been duly acknowledged. I hereby confirm the originality of the work and that there is no plagiarism in any part of the dissertation.

Dr. Noorunnisa Begum,
Associate Professor
Centre for Conservation of Natural Resources
The University of Trans-Disciplinary Health Sciences and Technology
May 2023

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DEDICATION

सं वो मनांसि जानताम्

saṃ vo manāṃsi jānatām

with our minds put together, may we understand

The Rig Veda. X. 191.

This thesis is dedicated to my guru, Sri M

Because of his blessings, I am here today (physically, intellectually, & spiritually)

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TABLE OF CONTENTS

1. Chapter 1 – Introduction

1.1 Objective 1

1.2 Introduction 1

1.3 Yanadi Tribe 2

1.4 Review of Literature 6

2. Chapter 2 - Materials & Methods

2.1 Data Collection 10

2.2 Data Analysis 17

2.3 Study Area 18

2.4 Flora & Fauna 21

3. **Chapter 3 - Enumeration of Plants** 22

4. Chapter 4 - Results & Discussion

4.1 Ethnographic Profile 108

4.2 Ethnoveterinary Practices 115

4.3 Ethnobotanical Knowledge Index & Species Popularity Index 122

5. Chapter 5 - Conclusion

5.1 Discussion & Conclusion 128

5.2 Limitations of the Study 130

5.3 Scope for Further Research 130

List of Tables

Table 1. Format of Consent Form 11

Table 2. Consent Form & Questionnaire for Ethnobotanical Index 12

Table 3. Yanadi tribals interviewed for Ethnobotanical Index 14

Table 4. Village Information 19

Table 5. List of Medicinal Plants utilized in *Pogatu* 115

Table 6. List of Medicinal Plants utilized in *Uppu Chakka* 119

Table 7. Ratio of Bark powder to rock salt utilized in *Uppu Chakka* 122

Table 8. Age Range of Participants 122

Table 9. List of Medicinal plants shown to participants 123

Table 10. Criteria & Score for Ethnobotanical Knowledge Index 124

List of Figures

Figure 1. Geographical distribution of the Yanadi Tribe in Andhra Pradesh 3

Figure 2. Huts of Yanadi Tribe 5

Figure 3. Baireddipalle Mandal in Chittoor district, Andhra Pradesh 18

Figure 4. Map of the Study Area 19

Figure 5. The Koundinya Wildlife Sanctuary 20

Figure 6. The Women of Yanadi Tribe 108

Figure 7. Vaidhya Siddappa explains the medicinal properties of *Dodonaea viscosa* 110

Figure 8. A stone stab that serves as a 'temple' and is decorated with vermilion and turmeric 111

Figure 9. Their houses are constructed with mud bricks and thatched with dried leaves and straw 112

Figure 10. Brooms made by grouping branchlets of *Azadirachta indica* together 113

Figure 11. The baskets are made of dried *Lantana camara* and used to store a variety of items 114

Figure 12 Dominant Plant Families 128

Figure 13 Habit of Plants (Tree, Shrub, Herb and Climber) 129

Figure 14 Plant Parts used 129

Figure 15 Plant usage 130

Synopsis

With limited access to forests and a decrease in oral transmission to the younger generation - the extinction of Indigenous knowledge is an imminent threat. This study documents indigenous ethnomedical knowledge and medicinal plants collected and utilized by the Yanadi tribe in Kaigal, Chittoor District, Andhra Pradesh, India. The current study is the result of six intense field trips that were undertaken over a year (2021–2022) in five representative interior tribal villages — Mudaramdoddi, Naniyalu, Sandra, Kaligutta, and Mugilrevu. The ethnomedicinal data was collected through observation and interaction with Yanadi Tribe members, traditional healers, and elders during field trips. Prior informed consent was taken from the interviewees. Duringthe interview - medicinal uses, local names, useful plant parts, method of preparation and dosage were recorded. A voucher specimen of each plant was prepared and deposited at FRLH Herbarium, Bangalore. The present study has resulted in the identification and documentation of 192 medicinal plants, which can be used to treat a range of conditions such as veterinary ailments, snakebites, wild edible plants, as well as fever, cold, and cough, among others. The Ethnobotanical Knowledge Index was used as a quantitative tool to rapidly measure the ethnobotanical knowledge in the Yanadi tribe in addition to the Species Popularity Index.

Keywords: Ethnobotany; Ethnoveterinary; Botany; Scheduled tribe; Traditional knowledge

List of Publications

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Chapter 1

1.1 Objective

To identify and record information about Medicinal plants collected and utilized by the Yanadi tribes and explore their indigenous ethnomedical knowledge.

1.2 Introduction

Without plants, it is difficult to fathom life on earth.

They are the fundamental substrate of life. They are responsible for the air we breathe, the food we eat, the fuel we drive, the clothes we wear, and the medicines we take. The relationship between *Homo sapiens* and plants is deeply intertwined. And, it traces back to the beginning of human existence.

The broad and simple definition of Ethnobotany is precisely that: The relationship between people and plants. Ethnobotany, along with the related disciplines of ethnobiology, ethnozoology and ethnoecology are of central importance to understanding this venerable relationship.

In 1874, Steven Powers, a journalist, ethnographer, and Native American tribes historian from the United States used the term "Aboriginal botany" to refer to a “study of all the forms of vegetable world which the aborigines used for medicine, textile, fabrics, ornaments, etc.”

However, American botanist J. W. Hershberger is credited with coining the term ethnobotany. He travelled extensively to document the plants of Mexico (1896), the West Indies (1901), Europe (1898, 1907 and 1923), South America (1927) and North Africa. He described the word as “The study that elucidates the cultural position of the tribes who used the plants for food, shelter or clothing.”

It was Robbins et al (1916) who defined the phrase as a "study and evaluation of the knowledge of all phases of plant life among primitive societies and of the effect of the vegetal environment upon the life."

In 1962, Richard Evans Schultes defined it as “the study of relationship which exists between people of primitive societies and their plant environment.” He fostered the tremendous growth of the field in the 20th century and is revered as the father of ethnobotany. He documented the ethnobotany of Mexico and the Colombian Amazon (Sheldrake, 2020). The term "economic botany" was adopted by him "to embrace all plants or plant products useful to man."

In India, the oldest record of medicinal plants in treatments is between 4500 and 1600 BC in Rigveda (Bhandari 1951; Pal 1981). Atharvaveda came next, which contained hymns that discussed the benefits of medicinal plants. The Sushruta Samhita's Chikitsa Sthanam

composed between 600 BC and 300 AD is a thorough description of medicinal plants (Bishagratna 1907-1916); Jain 1967.

The knowledge of medicinal plants has been accumulated over many years in medical systems such as Ayurveda, Unani, and Siddha. According to Pei (2001), 2500 plant species are used by traditional healers in India, and 100 plant species are regularly used as sources of medication.

In the words of Dr. S. K. Jain, the Father of Indian Ethnobotany, “Metaphorically, it is Dr. Janaki Ammal who lit the first candle in a dark room.” Under her leadership, the CSIR-Central Drug Research Institute established a unit for ethnobotany (Jain, 2019). The unit organized The All India Coordinated Project and training programs offered at Research and Development Institutions. This garnered a wide interest in researching ethnobotany and urged numerous botanists to join this discipline. It has sparked a great deal of interest in the nation's scientific community, and universities now offer courses on it at the UG and PG levels. From 1974 to 2018, a total of 2123 papers have been published in Ethnobotany in India (Pathak, 2020). Various funding organizations, including DST and the Ministry of Education, have also included it in their list of priority research subjects.

Traditionally, ethnobotanical knowledge is transmitted verbally, without the use of written records, within indigenous tribes (Perumal Samy and Ignacimuthu, 2000). Hence, it is crucial to document indigenous knowledge through ethnobotanical studies. One of the effective methods for finding new drugs is through an ethnobotanical survey (Fabricant and Farnsworth, 2001). Based on ethnobotanical data, several active substances have been found in plants and exploited as patented medications.
About one-fourth of the common medications used globally have reportedly been developed from plants for a few millennia (Ernst, 2005). 219 of the top 252 commonly used medicine formulations are made entirely of plants (Dobson, 1995). The utilization of ethnobotanical data in medicinal plant research has increased over the past few decades since indigenous people are a trustworthy source of information on medicinal plants (Iwu et al., 1999).

It is an urgent, necessity to record all information about plants and the role of tribes in conserving them. The main focus of the present study is to ascertain detailed information on the use of plants and their therapeutic practices among the Yanadi Tribe of Chittoor District, Andhra Pradesh.

1.3 Yanadi Tribe

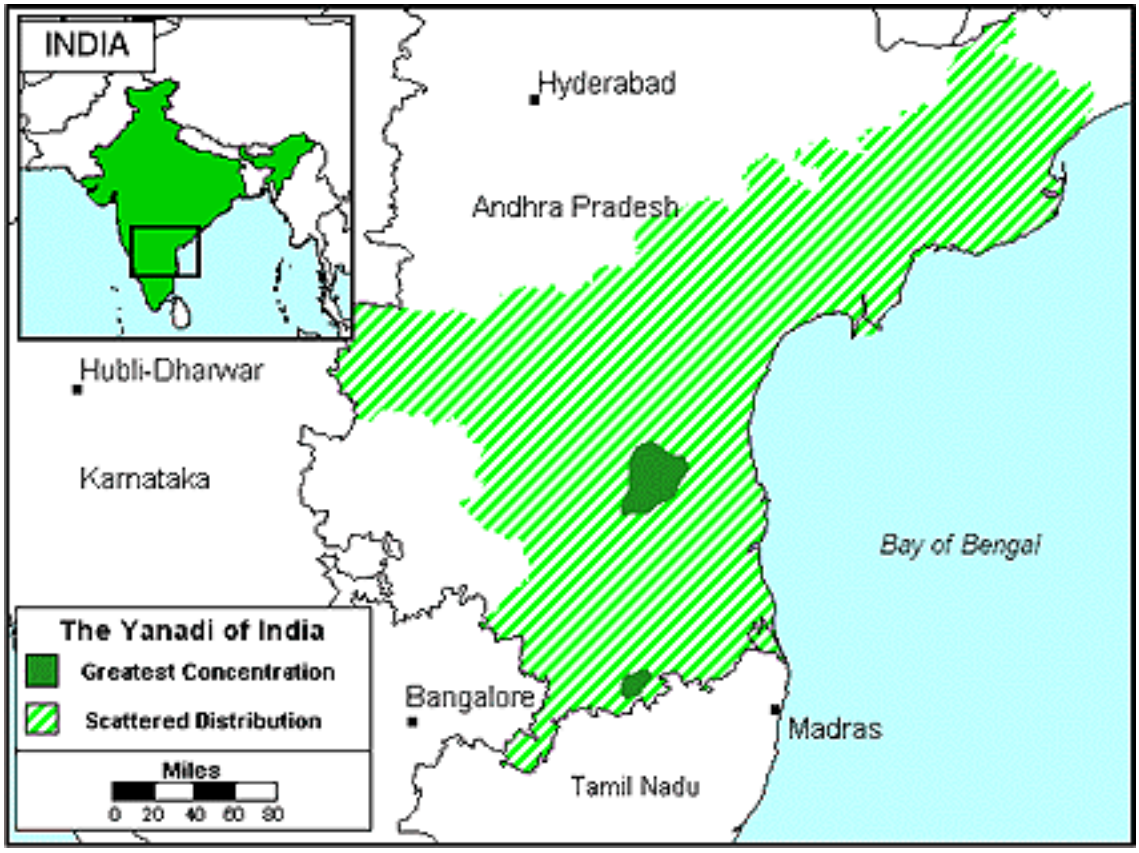


Figure 1. Geographical distribution of the Yanadi Tribe in Andhra Pradesh Source: The Joshua Project

The Yanadi tribe is one of the earliest races present in the Indian peninsular. They are numerically the largest tribe in Andhra Pradesh having an estimated population of 30 lakhs spread over four districts – Nellore, Chittoor, Prakasam, and Guntur.
The Yanadis are dark-skinned and short of statured. Thurston (1909) suggested that their name derived from the Sanskrit word "*anadi*" denoting those whose origin is unknown. They spoke yanadi which belongs to the Telugu language family. Some words are compounds of Telugu and Tamil, e.g., *artichedi* for plantain, *pandikutti* for pig. The yanadi tribe currently live in symbiosis with non-tribals. They had an animistic religion, produced fire by friction, and survived mainly by hunting and fishing.

Their origin is speculated, Prasad et al. (1995) conjectured they derived from the Chenchu Tribe of the Nallamalai forest of Andhra Pradesh. Whereas Thurston (1909) stated that the island of Sriharikota Island in the Nellore district served as their origin. In 1835, their impoverished state came to the attention of the British government. To improve their situation, the government gave them a generous allowance of grain, clothing, tobacco, and money in exchange for the produce they collected from the jungle.

They are divided into four clans according to diet, occupation, and residence. The Reddy Yanadis are employed by the rich men of villages as cooks. They are a stable class. They

view the Challa and Adavi clans as outcasts and avoid socializing with them. The Challa Yanadis work for the community in menial jobs such as scavenging. Occasionally, the Reddi and Challa Yanadis work as village watchmen or procure charcoal for the blacksmith. They live in huts on the outskirts of settlements. The Kappalla Yanadi catch fish and consume frogs. The Adavi Yanadi live in the forests as hunter-gatherers. They eat vegetables from the jungle and hunt and snare game. The Manchi, known as the good Yanadis, are a small elite group.

Yanadis have acquired firsthand knowledge of the medicinal benefits of a wide variety of herbs that they use to treat a variety of ailments, including diabetes, rheumatism, rheumatoid arthritis, colds, and coughs. They are well known for their snake bite treatments. They earn their livelihood by hunting fishing, cobra charming, collecting honey and wild edible fruits, rearing, and selling pigs, and practicing traditional medicine. Mackenzie (1875) narrates a legend concerning the Yanadis and their knowledge of snakes:

A rishi from Varanasi settled near the Yanadi village. Every day the Yanadis brought him food and fruit and asked him for help. They asked to learn charms to get rid of a dreadful serpent that plagued their nation. He taught them to charms to protect themselves from the serpent and vanished.

In addition to being familiar with the medicinal plant species in their ecosystems, Yanadis are also well-versed in the religious and cultural significance of plant diversity. They hold magico-religious beliefs and worship trees as residences for God and Goddesses. As a result, many plant species are protected in their natural habitats. *Vashikaran*, an esoteric art form is in danger of going extinct. This art of taking control of others' behavior using plants was formerly utilised for good. Gradually, it was exploited out of selfishness and became a secret art. They sustainably harvest several edible wild species for fruits, seeds, bulbs, roots, and tubers.

Due to their extreme poverty and lack of regular source of income, the Yanadis even migrate to neighbouring areas for work. Their subsidiary occupation is collection of minor forest products. They collect honey from beehives on hilltops and cliffs that are steep, difficult, and dangerous to reach. They also collect *Mahua* (*Madhuca indica*), *Chrionji* (*Buchanania lanzan*), *Harra* (*Terminalia chebula*), *Bahera* (*Terminalia bellerica*), *Bel* (*Aegle marmelos*), *Tendu* (*Diospyros melanoxylon*), *Imli* (*Tamarindus indica*) *Makoi* (*Solanum nigrum*), *Amla* (*Emblica officinalis*), *koronda* (*Carissa carandas*), *Kanda* (*Dioscorea bulbifera*) etc. In addition to this, medicinal plants and their parts are gathered and sold in local weekly markets. Occasionally, traders would go directly to the villages and buy the goods (Thurston 1909). Now as the forest area is being depleted, this source of income is disappearing.

Figure 2. Huts of Yanadi Tribe Source: Castes and Tribes of Southern India (Thurston 1909)

They reside in small-entranced thatched homes made of bamboo, grass, and millet stalks. A group of 20–50 huts known as a "*Gudum*" is under the general and social control of the head man known as "*Kulam pedda*." Their places of worship are not temples, but houses, called *dēvara indlu* (houses of the gods), set apart at the center of every village.

The Yanadi perform drumming and dancing while dousing their bodies with turmeric, donning floral garb, singing pointless melodies for festive occasions, ceremonies and occasionally begging. Their sole musical instrument is the bagpipe. Rev. G. N. Thomssen observed the Yanadi dances in which the dancers wear *Borassus* sp. leaf skirt with edible bulbs, roots, dead rats, and snakes. The dances illustrate the hunter's experiences during their excursions in the forest. He translated a scorpion (*thelu*) song and dance:

Alas! the scorpion stings.
O! O! the scorpion stings.
Which finger? Ah! the middle one.
As soon as I was stung,
The poison into my head ascends.
Ayo! Ayo! What shall I do?
Bring down the poison with yilledu (David 1893)

They have similar songs about snakes and plants in the forest. This tradition is no longer prevalent among the tribe.

1.4 Review of Literature

In 1954, Janaki-Ammal started the Economic Botany Section of the Botanical Survey of India (Howrah) as an official programme to study ethnobotany. Jain began doing in-depth field research in the tribal communities of central India in 1960 (Jain 1963a–e; 1964a–c; 1965a–b). Many botanists, anthropologists, and ayurvedic medical professionals began engaging in ethnobotanical activities as a result of these articles in the early 1960s. AICRP on Ethnobiology began operating in 1982 at NBRI, Lucknow, and four centres of the Botanical Survey of India (Shillong, Howrah, Coimbatore, and Port Blair) (Jain & Mitra 1997).

While Edgar Thurston (1909) described the castes and tribes of southern India, S.S. Hassan (1920) portrays the castes and tribes of H.E.H. the Nizam's Dominions. After tribal turmoil in Madras Presidency, the Nizam later commissioned British anthropologist C.V.F. Haimendorf to investigate the situation of the tribes in his domain. Accounts of Chenchus, the Reddis of Bison Hills, and the Gonds of Adilabad were published by Haimendorf (1943, 1945, and 1979). These publications primarily provide information about the ways of life, traditions, socioeconomic situations, and, to a lesser extent, the crops, and plants that the various ethnic communities raise and use.

The Andhra Pradesh Government (1988) documented the culture, sociology, and ethnobotany of the Yanadis and proposed the perspective plain for the development of Yanadis in Chittoor District.

Reddy et al., (1991) reported forty-five species used in traditional medicine by local tribal people (the Yanadis, Yerukalas, Sugalis, and Chenchus) for treating different ailments in Cuddapah District, Andhra Pradesh.

Vasulu (1994) studied the Genetic structure of a tribal population: anthropometric differences between regions and settlements among the Yanadi in coastline of Andhra Pradesh. It demonstrated large gender disparities, which can be found in breeding populations, can related with patterns of spatial distance and marital migration. The pattern reveals a weak relationship between settlements and topography.
Between 1990 and 1992, Sudarsanam & Siva Prasad (1995) conducted a medical ethnobotanical investigation of the Yanadi tribes in the Chittoor District, Andhra Pradesh. They found 22 plant species that were frequently utilised as antidotes for deadly stings. Vedavathy et al. (1997) highlighted the therapeutic knowledge of 33 tribes during 1994 – 1997 in Andhra Pradesh.

Rao and Pullaiah (2007) conducted a survey during 1997-2005 that brought to light, some rare and endemic plant ethnobotanical uses of Eastern Ghats. It overlooked 33 tribal communities in Andhra Pradesh and 62 in Orissa.

Pratap, Prasad & Sudarsanam (2009) enumerated 52 species belonging to 37 families to relieve different ailments by medicinal plants in Kailasagiri forest range of Chittoor district, Andhra Pradesh. Reddy et al. (2009) mentioned 48 plant species that cures 32 types of ailments used by the Yanadis in Cuddapah district, Andhra Pradesh.

According to Sekhar et al. (2011), the tribes of Chittoor District, Andhra Pradesh, use 62 types of herbs for medicinal purposes. Non-wood Forest Products (NFTPs) used by the Yanadis in the Mamandur Forest (Kadapa- Nallamali Range) of the Eastern Ghats, Andhra Pradesh, were described by Basha et al. (2011). In the Rapur forest section of the Nellore district in Andhra Pradesh, Chenchus, Yerukulas, Yanadis, and Irulas employed 61 species from 35 families as herbal treatments.

Savithramma et al. (2012) documented that the Yanadi tribe in Nellore District used 20 plants species belonging to 20 families to treat various diseases like worm infestations, scorpion stinge, headache, body pains, fevers, swelling of foots, skin diseases, heart diseases, stomach ulcers, diuretic, dysentery, snake bites, nerve disorders, rheumatic pains, antiseptic, helmentic disease, diabetes, cold and dental problems.

Ganesh and Sudarsanam (2013) enumerated the ethnomedicinal use of 70 plant species belonging to 44 families to relieve different ailments used by Yanadi Tribes in Seshachalam Biosphere Reserve Forest of Chittoor District, Andhra Pradesh.

In their paper on the demographics of Yanadis in the Rayalaseema districts of Nellore and Chittoor, Viswanadha et al. (2014) found that 88 percent of Yanadis were illiterate, 87 percent worked as agricultural labourers, 98 percent were married, with about 58 percent of those marriages taking place in the same village, and 40 percent had families with more than four members. In the communities surrounding the Veyilingalakona sacred grove, roughly 72 medicinal plants from 41 families were documented by Savithramma et al. (2014) as being utilised to heal 36 different sorts of common maladies.

Swapna (2015) studied the 30 plant species belonging to 20 families used by Yanadi tribe of Kavali, Nellore district to treat scorpion sting, snake bite, cold, helminthic diseases, body pains after delivery in women and dysentery.
In the Andhra Pradeshi district of Nellore, Dalibandhu (2016) examined and recorded the hygiene practises of the Yanadi Tribe. It offered suggestions for more effective ways to make the government's health awareness campaign successful. The Yanadi tribe in the Chandragiri reserve forest region, Chittoor District, Andhra Pradesh, used 48 medicinal plants to treat 53 different types of illnesses, according to Savithramma et al. (2016).

Thalari et al. (2017) investigation focused on the 14 medicinal plants that the Yanadis of Veyi Lingala Kona utilised to treat disease using their ancestors' traditional knowledge. They discovered a strong connection between traditional knowledge and biological resources. The tribal people of Siddeswarm holy groves in the Nellore District employed 12 medicinal plant antidotes for scorpion stings, according to Umamaheswari et al. (2017). Ethnopharmacological Survey of Yanadi Tribes in Vampalli Toka of Nellore District was documented by Umamaheswari et al. (2017), who discovered that Yanadis used 40 medicinal herbs.

In Madanapalle mandal of Chittoor District, Andhra Pradesh, Pratap et al. (2018) discovered 46 folk-therapeutic claims on 41 species belonging to 38 genera of 26 groups of Angiosperms against 24 types of illness conditions. As an example of how a community-centered initiative for biodiversity conservation and livelihood creation can both benefit from and build situated knowledge within the Yanadi community, using collaborative approaches in the Kaigal village near Kaundinya Wildlife Sanctuary, Andhra Pradesh, Sriranjani & Premnath (2018) cited the Kaigal Education and Environment Program of the Krishnamurti Foundation of India. Vijayasree & Sarada (2018) gathered 32 plant species from 25 families and 32 genera that were used by traditional healers in the Andhra Pradesh, Chittoor District.

Reddy, Babu & Rao (2019) undertook an ethnobotanical field survey that recognised 266 medicinally utilised plant species belonging to 216 genera and 88 families by the Yanadi, Nakkala and Irula in Seshachalam Biosphere Reserve in Eastern Ghats. In his research on the effects of alcoholism on Yanadi primary school students, Kumar (2019) discovered that these students were impacted by child marriage, parent illiteracy, migration, occupation, and drunkenness. The ethnomedical and nutritional applications of Cissus quadrangularis L. were recorded by Prasad et al. (2019) from the Andhra Pradesh tribes, rural residents, and traditional healers. For the Yanadis living in tribal groups in Kaigal village near Kaundinya Wildlife Sanctuary, Andhra Pradesh, Ranganathan, Sriranjani (2019) developed a compassionate educational strategy.

Reddy et al. (2020) studied the Health and Nutritional Status of Sugali and Yanadi Tribes of Rayalaseema Region, Andhra Pradesh. It highlighted that BMI and other anthropometric indicators were significant predictors of functional ability among the elderly tribals. Basha, Johnpaul and Siva Kumar (2020) listed out 149 medicinal plants in 50 families used by the Yanadis of Koundinya Wildlife Sanctuary, Andhra Pradesh. FBS et al. (2020) dealt with nearly 140 tree species belonging to 42 families of their ethnobotanical used in Sri Lankamalleswara wildlife sanctuary by the Yanadis. Emerald et al. (2020) mentioned 3 trees, 7 different herbs utilised for oral health care by the Yanadis of Nellore District, Andhra Pradesh. Manakadan et al. (2020) conducted a case study of Colonization in the Asian Elephant: Koundinya Wildlife Sanctuary in Andhra Pradesh. It highlighted the impact of the elephants on the local community including the Yanadis.

Paul and Jones (2021) researched about the conservation practice and indigenous cultures present in the Yanadis of in the Eastern Ghats. They argue that as much as the Yanadi lifeworld is shaped by the forests, the forests have been shaped by the community and their interaction with species and spaces.

Menon (2022) documented the cultural traditions of the Yanadi tribe such as dress, ornaments, life ceremonies i.e., marriage, religion, and political organization in Andhra Pradesh.

Chapter 2 Materials and Methods

The study technique and methodology for the ethnobotanical enumeration of the Yanadi Tribe in the Indian state of Andhra Pradesh's Chittoor district were adapted from the classic works of Schultes (1960), Jain and Rao (1976), and Martin (1995). In-depth fieldwork in particular tribal pockets were the focus.

The current study is the result of six intense field trips that were undertaken over a year (2021–2022) in five representative interior tribal villages—Mudaramdoddi, Naniyalu, Sandra, Kaligutta, and Mugilrevu—with good forest cover and plain pockets. Each field trip lasted between 5 and 14 days.

Ethnomedicinal data was collected through observation and interaction with Yanadi Tribe members, traditional healers, and elder people during field trips. Prior consent in the form of written signatures or thumb prints or audio recordings was taken from the interviewees. During the interview - medicinal uses, local names, useful plant parts, method of preparation and dosage were recorded. The plant species were identified with the help of the tribe. A voucher specimen of each plant was prepared and deposited at FRLH Herbarium, Bangalore.

2.1 Data collection

(i) Participant observation

The initial field trip was devoted to getting to know and building relationships with the local community, traditional healers (*Vaidhyas*) and elderly people.

(ii) Open-ended Interviews

Through random sampling information on taboos, folktales, religious practices and diet was observed, cross-checked, critically analysed, and documented. The purpose of subsequent field excursions was to gather information on the ethnobotanical practices of the Yanadis.

(iii) Systematic Interviews with local experts

(a) Ethnobotanical data

During the present study, 6 key informants were selected on the recommendation of knowledgeable elders and local authorities. The informants were selected from 5 villages in the study area given their ethnobotanical expertise. They were also selected based on their interest and cooperation in the proposed research work. They received a financial compensation of 500 rupees per day.

They developed confidence in the accuracy of the work and disclosed the practices with preparation and dose as a result of the frequent visits and the continued rapport. Field

trips were more frequent as a result of improved relationships with the participants, which opened the door for knowledge sharing in the community. Along with ethnobotanical information, vernacular names were collected. The observations on phenology, habit, habitat, the people and their way of life, and reports from interpreters, guides, traditional healers (*vaidhyas*), and other knowledgeable individuals were made in the field book.

(b) Ethnoveterinary data

There are two widespread ethnoveterinary practices, *Pogatu* & *Uppu Chakka*, that are used by the Yanadi tribe to treat common ailments in domesticated animals. To document the prevalence and diversity of these ethnoveterinary practices, 44 informants were interviewed across the 5 villages through structured interviews, focus group discussions, and transit walks (Jain and Vartika 2017).

The informants were a diverse group of traditional healers (*Vaidhyas*), elderly, and young men & women from both Yanadi and non-tribals communities. Prior Informed Consent (Table 1) was taken from the resource persons. Additionally, two veterinary doctors were interviewed.

Table 1. Format of Consent Form

Informant Details			
Name:		Gender:	
Age:		Occupation:	
Village:			
Prior Informed Consent Form			
I hereby agree to share the details of Traditional Healthcare practices during an oral interview to be conducted as a part of a Field Study on Ethnobotanical studies on medicinal plants used by Yanadi Tribes of Kaigal, Chittoor District, Andhra Pradesh, India. A Field Researcher namely Manasvi, CM, a student of Masters by Research at The University of Trans-Disciplinary Health Sciences and Technology explained me that she will document my traditional knowledge in my mother tongue, i.e., Telugu as a part of her field work being undertaken as a part of a Masters Research in Plant Systematics by Research at TDU. I also hereby agree to record my oral interview as well as in a written format as enclosed herewith. I also agree to allow my traditional knowledge to be published in the form of a report or a paper or an article in newspaper or journal or website as a co-author. Sign of the informant Date: Place:			

Undertaking to keep the information as confidential
We the undersigned persons hereby agree to keep the information received as a part of the oral interview with the informant as confidential and shall not divulge or use the same without prior written consent from the informant above mentioned for any purposes other than which is stated in the previous page. We agree to share a copy of any report or publication to the informant, based on the oral interview being conducted as explained in the previous page, before sending it for report or publication by me in any website or journal or any means to reveal my knowledge. Sign of the Field Researcher Name: Ms. Manasvi Contact Number: +91 8553651553

(c) Ethnobotanical Knowledge Index

The Ethnobotanical Knowledge Index (Josef & Wyk, 2011) is a quantitative tool. It was used to rapidly measure the ethnobotanical knowledge of 60 individuals in the Yanadi tribe. The Yanadis were categorized into ages groups such as child, young adult, adult and senior. They were shown a collection of 15 pictures that featured each plant's habit, flower, fruit, leaves, and stem. Through active participation, their knowledge of local names and uses of the fifteen plants was verified. A questionnaire (Table 2) was used to capture answers to the following questions:
(1) Do they recognize the plant?
(2) Do they recall the name of the plant?
(3) Do they recall any uses of the plant (as food, medicinal, or for other practical applications)?

The biographical details of each participant were recorded with the origin/source of their information, e.g., parents or grandparents, daily diet, etc. We were able to accurately record subtle nuances that would typically be lost during interpretation and translation since we used a common language (Telugu).

Table 2. Consent Form & Questionnaire for Ethnobotanical Index

About the Research
As you know, the interest in medicinal plants is fast declining in the Yanadi community. CM Manasvi, a Master's student researcher aims to document the medicinal and plant knowledge of the Yanadi tribe and share it with the scientific community. What benefits will you gain? 1. You will be credited with acknowledgment in article/book/media 2. The information collected will be reshared with the community in Telugu Do you want to disclose your knowledge? Yes/No Do you give consent to being audio recorded? Yes/No

This is for personal reference. This will not be shared.

I have read & understood this Prior Informed Consent Form.

Date: Sign of the informant

Undertaking to keep the information confidential

I, the undersigned person hereby agrees to keep the information received from the informant confidential. I shall not divulge or use the ethnobotanical knowledge for purposes other than those mentioned above. I agree to share the report or publication with the informant.

Sign of the Field Researcher
Name: Ms. Manasvi
Contact Number: +91 8553651553

Informant Details

Name:		**Tribe:**	
Gender:	Male/Female	**Age:**	Below 20/ 20-40/ above 40
Locality:		**Occupation:**	
Knowledge gained from:		**Knowledge transferred to:**	

Ethnobotanical Data Sheet

No.	**Local name**	**Method**	**Frequency of usage**
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			

14.			
15.			
What are the common ailments in your village?			
How do you manage them: Home remedy/Vaidhya/Hospital?			
What do you when you have a headache/fever: Home remedy/Vaidhya/Hospital?			
What do you eat daily?			
What plants (fruits, vegetables, leaves or tubers) do you eat from the forest?			
What plants do you use at home (firewood, sweeping, fencing, furniture etc)?			
Why do you or do you not believe in herbal medicine?			

Table 3. Yanadi tribals interviewed for Ethnobotanical Index

No.	Name	Gender	Age	Locality	Occupation
1	Poojitha	F	7	Mugilrevu	In school
2	Hemadri	M	10	Sandra	Animal rearing
3	Venkatramana	M	13	Kaligutta	Animal rearing
4	Kiran	M	14	Naniyalu	In school
5	Rajendra	M	14	Naniyalu	In school
6	Neelu	F	16	Naniyalu	In school
7	Anitha	F	16	Naniyalu	In school
8	Neelu	F	16	Chintakalu banda	In school
9	Kalamma	F	18	Naniyalu	In school
10	Pavithra	F	19	Kaligutta	At home
11	Eshwar	M	20	Sandra	Factory
12	Jalaja	F	22	Mugilrevu	Housewife
13	Mugili suri	F	22	Mugilrevu	Labourer
14	Roopa	F	23	Kaligutta	Housewife
15	Krishnaveli	F	23	Mugilrevu	Housewife

16	Govind	M	23	Chintakalu banda	Electrician
17	Devraj	M	24	Mugilrevu	Labourer
18	Anita	F	26	Mugilrevu	Labourer
19	Ramesh	M	28	Naniyalu	Driver
20	Shiva kumar	M	28	Mugilrevu	Agriculture
21	Andai amma	F	28	Sandra	Teacher
22	Berappa	M	30	Naniyalu	Elephant watcher in the Forest department
23	Rajaamma	F	30	Naniyalu	Agriculture
24	Danamma	F	30	Naniyalu	Tailor
25	Shantiamma	F	30	Sandra	Labourer
26	Govind rajalu	M	30	Kaligutta	Cattle farmer
27	Kanamma	F	30	Chintakalu banda	Labourer
28	Nagaraj	M	30	Chintakalu banda	Labour work
29	Savithri amma	F	35	Sandra	Cattle farmer
30	Shankar amma	F	36	Mugilrevu	Tailor
31	Gowramma	F	40	Naniyalu	Agriculture
32	Jejamma	F	40	Naniyalu	Agriculture
33	Chinna Ammaa	F	40	Naniyalu	Agriculture
34	Jaya lakshmi	F	40	Naniyalu	Goat farmer
35	Venkatramana	M	40	Sandra	Goat Farmer
36	Kavitha amma	F	40	Sandra	House wife
37	Kalyani amma	F	40	Sandra	Goat farmer
38	Munniamma	F	43	Sandra	Cattle farmer
39	Chandrappa	M	44	Kaligutta	Cattle farmer
40	Ashok kumar	M	45	Chintakalu banda	Cattle farmer & Agriculture
41	Venkatamma	F	45	Chintakalu banda	Labour
42	G Subramaniyam	M	50	Naniyalu	Agriculture
43	Adai Amma	F	50	Mugilrevu	Labourer
44	Ganapathi	M	52	Naniyalu	Agriculture
45	Venkatesh B	M	55	Chintakalu banda	Labour
46	Wali Amma	F	60	Kaligutta	Cattle farmer

47	Pedda Papamma		60	Mugilrevu	Labourer
48	Rajamma	F	60	Chintakalu banda	Labourer
49	Govindappa	M	65	Naniyalu	Agriculture
50	Rajanna	M	65	Mugilrevu	Goat farmer
51	Appa	M	65	Chintakalu banda	Goat farmer
52	Kanappa	M	70	Naniyalu	Goat farmer
53	Rajappa	M	71	Sandra	Goat farmer
54	Rajamma	F	40+	Mugilrevu	Labourer
55	Meenakshi amma	F	55+	Kaligutta	School cook
56	Siddakka	F	60+	Kaligutta	Cattle and goat farmer
57	Kanaka amma	F	60+	Mugilrevu	Labourer
58	Chitti	F	60+	Chintakalu banda	Labourer
59	Andaiappa	M	75+	Kaligutta	Vaidhya
60	Siddappa	M	75+	Kaligutta	Vaidhya

(iv) Identification, Collection & Herbarium preparation

Every attempt was made to create high-quality specimens of the plant species during the flowering and fruiting seasons. Many plant species were collected during a walk with informants in different villages. When the informants were interviewed at their houses, the medicinal plant samples were gathered soon after the interview. The voucher specimens were collected with the help of informants and the local community. The plant specimens were collected, dried, preserved and mounted on Herbarium sheets (Jain and Rao 1976). The following articles were used:

- Field notebook
- Secateurs
- Knife
- Polythene bags of different sizes
- Newspapers
- Plant press
- Solution of rectified spirit
- GPS

They were deposited in the FRLH herbarium, Bengaluru, Karnataka. The collected plants were identified with the help of 'Flora of Andhra Pradesh' (Pullaiah and Chennaiah 1997), 'Flora of Eastern Ghats, hill Ranges of South East India' (Pullaiah and Ramamurthy 2001), Flora of Peninsular India (Sankara et al., 2005), Tribal Medicine of Chittoor District, Andhra Pradesh, India (Vedavathy et al., 1997) and by comparison with

authentic specimens in the FRLH Herbarium. The nomenclature of each species has been updated as per the APG IV classification.
It was noted to take images, videos, and audio recordings of the flowering or fruiting plants during the fieldwork. Additionally, photographs and videos of the informants when providing information about the medicinal properties of plants were taken.

2.2 Data analysis

(i) Enumeration of Ethnobotanical Plant Species

In the enumeration, plant species of ethnobotanical interest are arranged alphabetically with the updated nomenclature, vernacular name, and followed by family, habit, habitat, phenology, parts used, and distribution. A brief description of the species reflecting the distinguishing characters is given. Finally, ethnobotanical data were presented in detail, followed by medicinal and veterinary ethnobotanical practices, mode of preparation, administration, and dosage of the drug given for each species.

(ii) Ethnobotanical Knowledge Index & Species Popularity Index

The Ethnobotanical Knowledge Index (Beer Josef & Wyk, 2011) is a quantitative tool. The interviews were transcribed and digitally recorded to ensure accuracy.
The next step was to enter the data into a matrix of participants against species. Each cell includes four digits, namely (1) species known or not; (2) name known or not; (3) uses known or not, to which numerical values of 1, 2, and 3 were respectively allocated, with 0 indicating no knowledge. The last digit represents the sum of the three values (with a maximum value of 6). By adding the scores for each participant, a quantitative measure of their knowledge of plants is obtained. We express each participant's ethnobotanical knowledge as a ratio of the maximum possible score of 90, obtained by multiplying the total number of plants (15) with the maximum score for each species (6). The value of this “Ethnobotanical Knowledge Index” (EKI) thus varies between 0 and 1. For example, the highest EKI in this study was 0.96 (as expected, for the most knowledgeable participant, Andaiappa.)

The matrix also indicates the importance or popularity of each species, as measured by the number of participants who knows the plant and its uses. We express this “Species Popularity Index” (SPI) as a ratio of the maximum possible score of 600, obtained by multiplying the number of participants (60) with the maximum score for each species (6). For example, the highest SPI in this study was 0.96 for *Carissa carandas* L. (a popular, native fruit tree), followed by 0.86 for *Sapindus emarginatus* Vahl and 0.85 for the popular wild edible plant, *Canthium coromandelicum* (Burm.f.) Alston.

2.3 Study Area

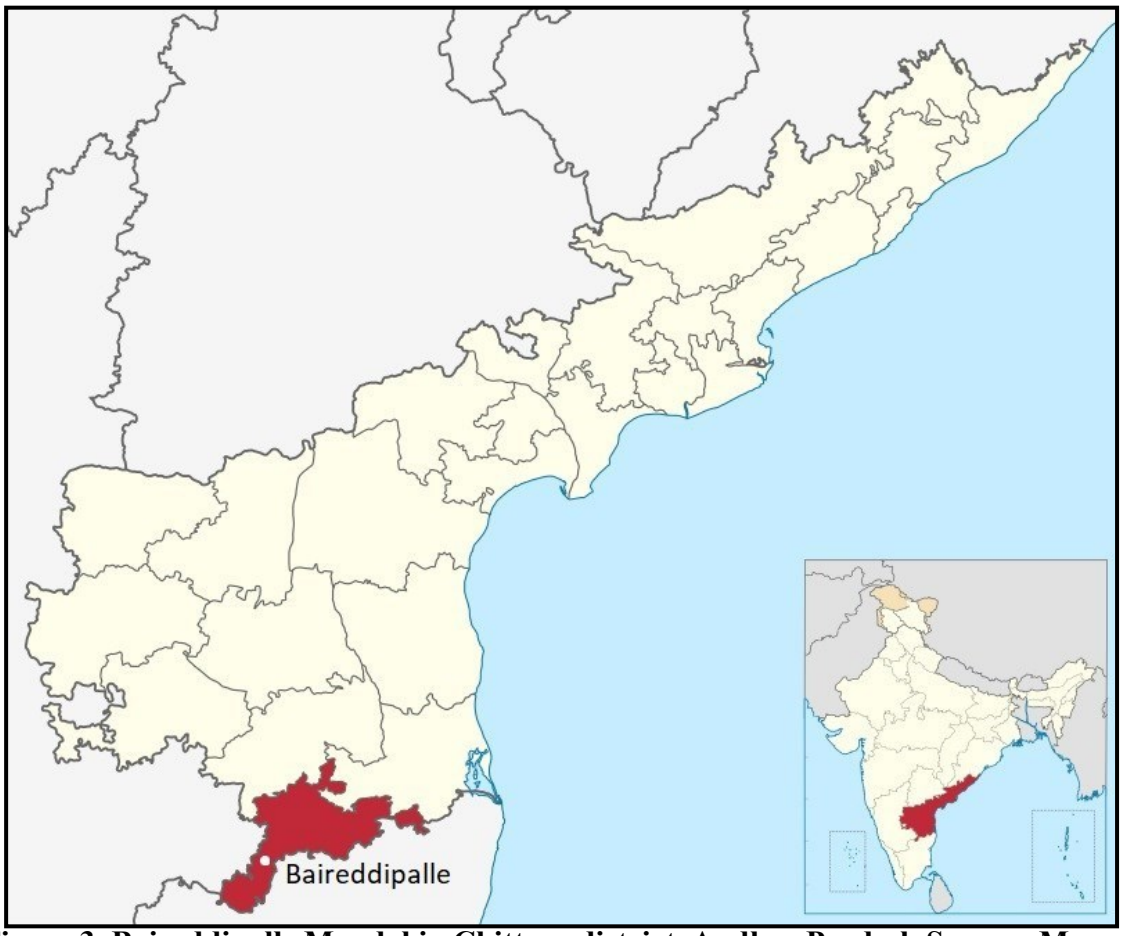


Figure 3. Baireddipalle Mandal in Chittoor district, Andhra Pradesh Source: Maps of India

Figure 4. Map of the Study Area Source: Google Earth Pro

The study area lies in Baireddipalle Mandal, Chittoor district, and is located at 13°06'90" N 78°56'2" E Latitude and longitude, Andhra Pradesh. It is bordered on the south and west by Venkatagirikota Mandal, the north and east by Palamaner, Gangavaram, and Peddapanjani Mandals, the south by the state border of Tamil Nadu, and the west by the state border of Karnataka. It is located 130 kilometres west of Tirupati city and 55 km west of Chittoor town. The Yanadi villages of Mudaramdoddi, Naniyalu, Sandra, Kaligutta, and Mugilrevu were chosen because of their proximity to the Koundinya Wildlife Sanctuary.

Table 4. Village Information

No.	Village	Forest type	Latitude and Longitude	Altitude
1	Mudaramdoddi	Dry Deciduous	13°02’11.1” N 78°52’81.5” E	580 m
2	Naniyalu	Mixed Deciduous	13°01’40.6” N 78°36’35.8” E	650 m
3	Sandra	Dry Deciduous	13°10’29.6” N 78°69’96.9” E	550 m
4	Kaligutta	Dry Deciduous	13°03’38.4” N 78°61’06.8” E	560 m

5	Mugilrevu	Dry Deciduous	13°03'21.4" N 78°69'06.8" E	500 m

It has Southern Tropical Dry & Mixed Deciduous Forest with thorny scrubs interspersed with trees. The Koundinya and Kaigal tributaries of the Palar River as well as small ponds and tanks can be found in these forests. It is located where the Kolar Plateau ends and dips into the Tamil Nadu plains, forming several valleys and ghats.

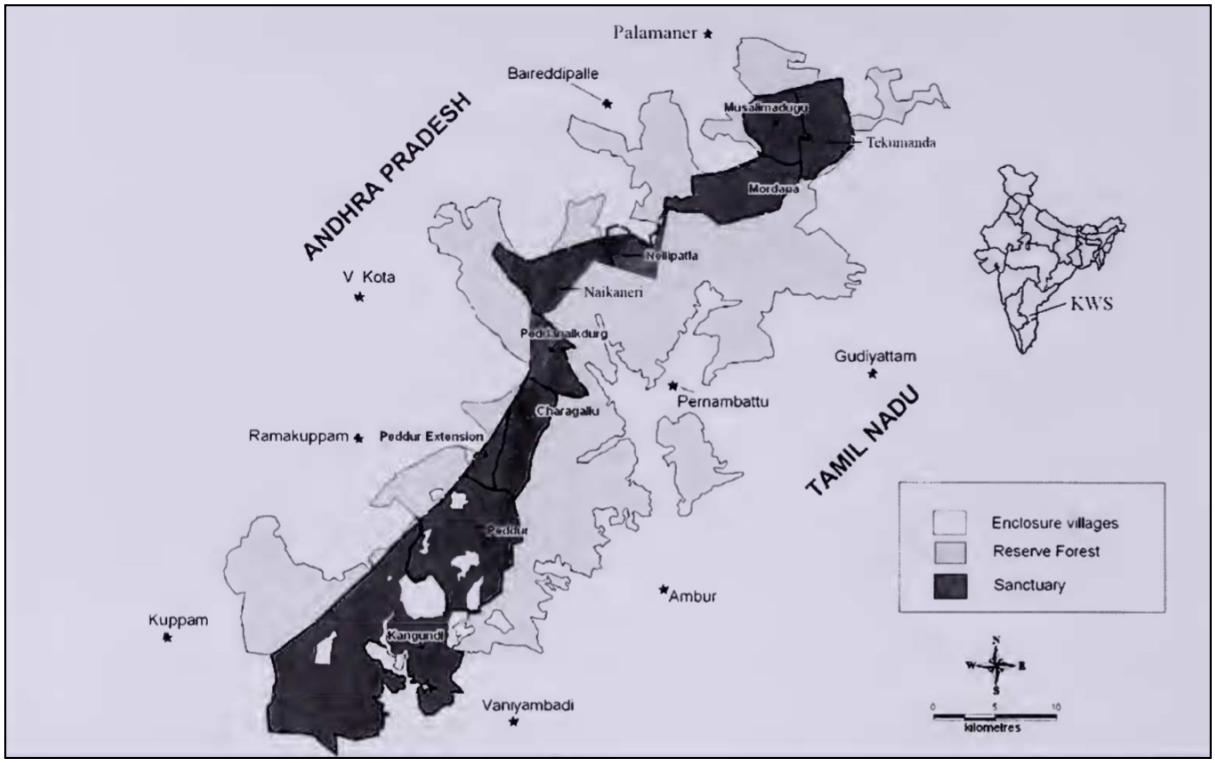


Figure 5. The Koundinya Wildlife Sanctuary Source: Manakadan (2009)

(i) Climate

The study area falls under the Semi-arid zone of South India. It enjoys a warm climate. It is situated at an altitude of 394.5 mts. above MSL. The maximum and minimum temperatures are 31.4ºC and 19.9ºC. The region experiences winter, summer, and monsoon. The annual rainfall is 895.65 mm.

(ii) Temperature, Precipitation, Wind Speed, and Humidity

Winter (November-February) is cold with temperatures sometimes dropping to 10ºC. Summer (March-May) is mild with a maximum temperature of about 34ºC. Monsoon (June-December) rain is erratic and low.

The April and May months are the hottest months with a mean maximum temperature of 34.9ºC. The heat continues up to June till the pre-monsoonal showers in the middle of June. December is the coldest month with a maximum temperature of 27ºC.

The Southwest Monsoon season (June-September) is discontinuous, with moderate to light rain with intervening dry spells. The rainfall is 424.64 mm during this period. As a result, rainfall during the southwest monsoon is higher than during the northeast monsoon. The Northeast Monsoon season (October-December) is occasional showers with rainfall of about 348.23 mm.

During the dry season, hot, dry, and gusty winds blow. The violent wind is rare. Even during monsoons, the air is calm and undisturbed. The mean wind velocity varies from a maximum of 18.7 km/hour in July to a minimum of 8.1 km/hour in October.

During July to December, the relative humidity is about 70 and 80 percent in the mornings and about 60 to 65 percent in the afternoon. It decreases thereafter. From February to May, the driest part of the year, the relative humidity is about 30 and 40 percent in the mornings and about 25 and 40 percent in the afternoons (Muralidhar, 2020).

Most of the topography is hilly, rocky, and undulating. The soils are mostly infertile. Drainage is non-perennial. Groundwater resources are extremely scarce and only available for a few months out of the year.

2.4 Flora & Fauna

The vegetation is predominantly of Southern Tropical Dry & Mixed Deciduous Forest (Champion and Seth 1968), comprising trees such as *Hardwickia binata*, *Chloroxylon swietenia*, *Albizia amara, Boswellia serrata, Anogeissus latifolia* and *Pterocarpus santalinus*. The water courses are dominated by *Terminalia arjuna*, *Pongamia pinnata*, *Tamarindus indica, Mangifera indica,* and *Syzigium cumini*. However, the vegetation varies widely in different areas as a result of terrain, soil, and impacts of grazing.
The major mammals reported from the region are the Bonnet Macaque (*Macaca radiata*), Hanuman Langur (*Presbytis entellus*), Slender Loris (*Loris tardigradus*), Leopard (*Panthera pardus*), Striped Hyena (*Hyaena hyaena*), Sloth Bear (*Melursus ursinus*), Dhole (*Cuon alpinus*), Jackal (*Canis aureus*), Small Indian Civet (*Viverricula indica*), Common Indian Mongoose (*Herpestes edwardsi*), Indian Porcupine (*Hystrix indica*), Indian Hare (*Lepus nigricollis*), Indian Flying Fox (*Pteropus giganteus*), Spotted Deer (*Axis axis*), Four-homed Antelope (*Tetracerus quadricornis),* Mouse Deer *(Tragulus meminna)* and Wild Boar *(Sus scrofa)* (Ranjit, 2009).

According to Ranjit (2009), the vegetation cover of the Hosur-Dharmapuri forest has decreased by 476 sq. km from 1990 to 2003. The scrub forest expanded by 178.6 sq. km, and open forest increased by 274 sq. km. Therefore, the threat to the flora and fauna is growing as a result of development.

Chapter 3 Enumeration of Plants

1. ***Abrus precatorius*** L.

Local name: *Guriginjalu* **Family:** Fabaceae

Habit: Climber **Habitat:** Thickets

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Fruit & leaf

Distribution: Kurnool, Krishna & Chittoor districts of Andhra Pradesh (Pullaiah & Ramamurthy, 2001).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 13°01'40.6"N 78°36'35.8"E, 640 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126546 (FRLH)

Description: Stem slender, appressed silky-hairy when young, glabrous when mature. Leaves paripinnate; leaflets 10-13 pairs, opposite, oblong, glabrous. Racemes terminal or axillary; flowers clustered, pink. Pod wrinkled. Seeds red and black.

Uses:

Improve mother's health (after childbirth): The seed paste is orally administered with one glass of water.

2. ***Abutilon indicum*** (L.) Sweet

Local name: *Oopirikuttaku* **Family:** Malvaceae

Habit: Subshrub **Habitat:** Open places

Phenology: Flowering & fruiting from Mar.-Sept. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'10.0"N 78°33'42.5"E, 550 m, 06/04/2022, CM Manasvi, 126236 (FRLH)

Description: Leaves alternate, Cordate, glaucous at beneath, stellate–hairy. Flowers solitary, axillary; petals bright yellow.

Uses:

Upset stomach (vomiting): The leaves are crushed and orally administered with water.

3. ***Acalypha fruticosa*** Forssk.

Local name: *Judi Chettu* **Family:** Euphorbiaceae

Habit: Shrub **Habitat:** Roadsides

Phenology: Flowering & fruiting from Jul.-Dec. **Parts used:** Leaf

Distribution: Kadapa & Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126508 (FRLH)

Description: Leaves ovate, acute-acuminate at apex. Inflorescence spikes, terminal and axillary; flowers greenish-pale white.

Uses:

Fodder: The leaves are used as fodder for goats.

4. ***Achyranthes aspera*** L.

Local name: *Uttarani* **Family:** Amaranthaceae

Habit: Herb **Habitat:** Waste places

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126509 (FRLH)

Description: Leaves variable, orbicular or obovate. Inflorescence spikes, terminal, up to 17 cm long; Flowers brownish; bracts ovate; bracteoles spinous or aristate.

Uses:

Insect bite: The leaves are crushed and orally administered with pepper.

5. ***Pigea enneasperma*** (L.) P.I.Forst.

Local name: *Chandrakanti* **Family:** Violaceae

Habit: Herb **Habitat:** Waste places

Phenology: Flowering & fruiting from Jul.-Nov. **Parts used:** Whole plant

Distribution: All the districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’29.6’’ N 78°69’96.9’’ E, 557 m, 05/06/2022, CM Manasvi, 126293 (FRLH)

Description: Leaves simple, oblong-lanceolate, Flowers cymes, axillary; petals pink.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The whole plant is used to cure ethnoveterinary ailments.

6. ***Ailanthus excelsa*** Roxb.

Local name: *Peethra mannu* **Family:** Simaroubaceae

Habit: Tree **Habitat:** Plains

Phenology: Flowering & fruiting from Jan.-Mar. **Parts used:** Resin

Distribution: East Godavari, Chittoor, Vishakapatnam, Hyderabad, Nizamabad, Mahaboobnagar, Warangal and Adilabad districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86'54.9'' N 78°57'24.7'' E, 640 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126569 (FRLH)

Description: Bark grey. Leaves imparipinnate; leaflets 17-25, oblique at base, acute or acuminate at apex. Flowers greenish pale yellow. Samara membranous, 1-seeded.

Uses:

Fragrance (*sambrani)*: The resin of the tree is dried and powdered.

7. ***Albizia amara*** (Roxb.) Boivin

Local name: *Chigare* **Family:** Fabaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Mar.-Jan. **Parts used:** Bark & fruit

Distribution: All the districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'25.8"N 78°33'33.1"E, 78 m, 02/04/2022, CM Manasvi, 126202 (FRLH)

Description: Branchlets many; bark brownish-black. Leaflets 10-30 pairs, linear-oblong. Flowers yellowish. Pods flat seeds 6-8.

Uses:

Cough & fever in infants: A strip of the bark is soaked in the mother's milk. It is orally administered with jeera and turmeric.

Shampoo: The dried fruits of *Albizia amara*, *Catunaregam spinosa* & *Sapindus emarginatus* are ground in 1:1:1 proportion. The powder is used to cleanse hair.

***Kundu* disease in cattle** (fever, decrease in milk production, shivering): The bark is ground with pepper and garlic. It is orally administered with water.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The bark is used to cure ethnoveterinary ailments.

8. ***Albizia lebbeck*** (L.) Benth.

Local name: *Baage* **Family:** Fabaceae

Habit: Tree **Habitat:** Roadsides

Phenology: Flowering & fruiting from Jul.-Mar. **Parts used:** Bark & wood

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126250 (FRLH)

Description: Leaves bipinnatelycompound; leaflets elliptic-oblong, glabrous. Flowers pale yellowish, in globose heads. Pods oblong, pale yellow when dry.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Wood: The dried branches are used to make furniture**.**

9. ***Aloe vera*** (L.) Burm.f.

Local name: *Kalabanda* **Family:** Asphodelaceae

Habit: Herb **Habitat:** Gardens

Phenology: Flowering & fruiting from Jul.-Jan. **Parts used:** Root & leaf flesh

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’29.7’’ N 78°61’05.7’’ E, 560 m, 05/06/2022, CM Manasvi

Description: Leaves ensiform, succulent, spinous-dentate; Inflorescence terminal racemes, up to 25 cm long. Flowers scarlet or orange. Capsules loculicidal.

Uses:

Boils, blisters & wounds: Fleshy portion of leaves with the roots are mildly heated and applied over the affected parts.

10. ***Alternanthera ficoidea*** (L.) P.Beauv.

Local name: *Erri Konaganti akku* **Family:** Amaranthaceae

Habit: Herb **Habitat:** Pastures & waste places

Phenology: Flowering & fruiting from Aug.-Jan. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86’54.9’’ N 78°57’24.7’’ E, 655 m,08/07/2022, CM Manasvi & Arun Kumar N, 126556 (FRLH)

Description: Leaves elliptic, glabrous. Spikes white or slightly pinkish, axillary and terminal.

Uses:

Food: The leaves are edible and are eaten as a vegetable.

11. ***Alternanthera sessilis*** (L.) R.Br. ex DC.

Local name: *Ponna ganti kura* **Family:** Amaranthaceae

Habit: Herb **Habitat:** Along ponds & streams

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'09.5"N 78°33'46.1"E, 537 m, 03/04/2022, CM Manasvi, 126212 (FRLH)

Description: Stem prostrate; purplish branches. Leaves linear, oblong. Inflorescence spikes, axillary; flowers cluster, white.

Uses:

Food: Leaves cooked as vegetable.

12. ***Amaranthus spinosus*** L.

Local name: *Mulladagali* **Family:** Amaranthaceae

Habit: Herb **Habitat:** Waste places

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126504 (FRLH)

Description: Stem stout, glabrous. Leaves alternate, ovate-lanceolate, entire at margin, acute at apex, glabrous. Inflorescence spikes, extra axillary or terminal, up to 15 cm long. Achenes ovoid, brownish-black.

Uses:

Fodder: The leaves are eaten by cattle.

Food: The leaves are used to make curry and sambhar.

13. ***Andrographis echioides*** (L.) Nees

Local name: *Nelavemu* **Family:** Acanthaceae

Habit: Herb **Habitat:** Waste places and scrub forests

Phenology: Flowering & fruiting from Dec.-Apr. **Parts used:** Leaf

Distribution: West Godavari, Kadapa, Kurnool, Srikakulam districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°03'57.3"N 78°33'39.8"E, 570 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126550 (FRLH)

Description: Branchlets hispid. Leaves opposite, oblong to oblanceolate, acute at apex. Flowers white with brown tinge, in axillary racemes.

Uses:

Skin disease: The leaf paste is applied to the affected areas.

14. ***Andrographis elongata*** (Vahl) T.Anderson

Local name: *Kanaka malli* **Family:** Acanthaceae

Habit: Prostrate herb **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jan.-May **Parts used:** Leaf

Distribution: Endemic to peninsular India

Visakhapatnam and Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’13.0’’ N 78°69’82. 1‘’ E, 575 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126557 (FRLH)

Description: Leaves ovate-lanceolate pubescent, base narrowed. Inflorescence panicles; corolla bi-lipped, light pink. Capsule linear, glabrous; seed rugose, glabrous.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethno-veterinary ailments.

Fodder: The leaves are fed to goats and cows.

15. ***Andrographis serpyllifolia*** (Rottler ex Vahl) Wight

Local name: *Gola dani botlu* **Family:** Acanthaceae

Habit: Herb **Habitat:** Grassy patches

Phenology: Flowering & fruiting from Dec.-Feb. **Parts used:** Roots & whole plant

Distribution: Endemic to Peninsular India

Anantapur, Chittoor, Kadapa, East Godavari, Guntur, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Vishakapatnam, Vizianagaram and West Godavari of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'08.4"N 78°41'50.1"E, 562 m, 05/06/2022, CM Manasvi, 126457 (FRLH)

Description: Leaves opposite, ovate-suborbicular, obtuse at apex, glabrescent. Flowers solitary, axillary, 1-2 per node. Corolla 2-lipped, white with purple striate or tinge

Uses:

Uppu chakka (cleanses palate, improves digestion, and increases milk production in cattle): The root bark and leaves are used in *Uppu Chakka*. It helps in milk production in cattle.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The whole plant is used to cure ethnoveterinary ailments.

Sickness in kids (diarrhea, vomiting, and inactive): The root is used.

16. ***Annona squamosa*** L.

Local name: *Seetha phalamu* **Family:** Annonaceae

Habit: Small tree **Habitat:** Cultivated

Phenology: Flowering & fruiting from Apr.-Nov. **Parts used:** Fruit

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°01'55.6"N 78°36'36.0"E, 553 m, 05/04/2022, CM Manasvi, 126227 (FRLH)

Description: Bark grey. Leaves simple, elliptic, thin coriaceous, glaucous beneath. Flowers solitary, 2-4 cluster. Fruit a fleshy syncarp, pulp sweet.

Uses:

Food: The fruit is edible.

17. ***Aponogeton natans*** (L.) Engl. & K.Krause

Local name: *Godi chettu* **Family:** Aponogetonaceae

Habit: Herb **Habitat:** Ponds

Flowering & Fruiting: Throughout the year **Parts used:** Root

Distribution: Throughout districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126511 (FRLH)

Description: Leaves variable, lanceolate, orbicular or obovate. Flowers terminal spikes, white; bracts ovate; bracteoles spinous like wings broad.

Uses:

Food: The root is used to make curries.

18. ***Aristolochia indica*** L.

Local name: *Iswariveru* **Family:** Aristolochiaceae

Habit: Climber **Habitat:** Open scrub jungle

Flowering & fruiting: Sept.-Mar. **Parts used:** Roots

Distribution: This is reported to be occasional in the forests of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°05'51.3"N 78°41'55.5"E, 570 m, 05/06/2022, CM Manasvi, 126248 (FRLH)

Description: Leaves simple, oblong-ovate, or obovate. Flowers greenish white, in axillary racemes. Fruit septicidal; seeds winged.

Uses:

Scorpion or centipede bite: The root is roasted (on fire) until soft. It is rubbed on a rock and produces a white paste. The paste is applied to the affected area.

Indigestion: The root is roasted on fire until soft. It is rubbed on a rock and produces a white paste. One tablespoon of the paste is orally administered with hot water.

19. ***Asclepias curassavica*** L.

Family: Apocynaceae **Habit:** Herb

Habitat: Planted **Phenology:** Flowering & fruiting from Jan.-Jun.

Parts used: Whole plant

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126496 (FRLH)

Description: Leaves decussate, lanceolate, puberulous along nerves, acute at both ends. Flowers bright orange red, in sub-terminal umbels. Follicles tapering at ends. Seeds winged.

Uses:

Ornamental value: It is planted in home gardens.

Additional notes: The flowers attract many butterflies.

20. ***Asparagus racemosus*** Willd.

Local name: *Abiruvu / Pulichinta akku / Majig gadallu theega* **Family:**Asparagaceae

Habit: Climber **Habitat:** Dry Deciduous and scrub forests

Phenology: Flowering & fruiting from Sep.-Oct. **Parts used:** Whole plant

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'37.6"N 78°42'15.7"E, 570 m, 05/06/2022, CM Manasvi, 126226 (FRLH)

Description: Leaves minute, slender; cladodes *c*. 1 cm long. Flowers white, in axillary racemes; pedicels, filiform.

Uses:

Commercially sold: The roots are sold.

21. ***Azadirachta indica*** A. Juss.

Local name: *Vepa manu* **Family:** Meliaceae

Habit: Tree **Habitat:** Natural

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Bark, Leaf & Seeds

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°07’70.7’’ N 78°55’66.8’’ E, 555 m, 06/04/2022, CM Manasvi, 126237 (FRLH)

Description: Leaves pinnately compound; leaflets alternate, imparipinnate, crenate serrate, acute to acuminate at apex, glabrous. Flowers cream or yellowish-white in axillary panicles.

Uses:

Throat ache (swollen salivary glands): The seed without the husk is lightly roasted. It is powdered and orally administered with one glass of hot water, three times a day.

Skin allergy (white patches all over the body, itchy): One inch of bark is smashed, and soaked in water. One glass is orally administered every day for two weeks.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Loss of appetite in domesticated animals: The leaves of *Cissus quadrangularis*, *Senna auriculata, sagurti/chegurthi,* and *Azadirachta indica* is mixed with boiled rice. The domesticated animals are fed this every Sunday for three to four months.

Diabetes: Two leaves of *Gmelina asiatica* and *Azadirachta indica* are chewed daily in the morning before breakfast.

Commercially value: The seed is used to make cooking oil.

22. ***Bacopa monnieri*** (L.) Wettst.

Local name: *Neer samrani* **Family:** Plantaginaceae

Habit: Herb **Habitat:** Marshy places

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’46.1’’ N 78°69’97.7’’ E, 560 m, 04/06/2022, CM Manasvi, 126266 (FRLH)

Description: Leaves sessile, decussate, obtuse at base, entire at margins. Flowers solitary, axillary, blue or white with purple veins. Seeds many, oblong.

Uses:

Food: The leaves are eaten raw.

23. ***Bauhinia purpurea*** L.

Local name: *Are* **Family:** Fabaceae

Habit: Tree **Habitat:** Plains

Phenology: Flowering & fruiting from Sep.-Jan. **Parts used:** Leaves, bark & seed

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°04'38.3"N 78°33'30.2"E, 560 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126287 (FRLH)

Description: Bark ash colored to dark brown. Leaves oblong, subcordate, entire at margin, obtuse to subacute at the apex. Inflorescence racemes, terminal or axillary; flowers rose to purple; petals similar. Seeds ovoid.

Uses:

Weak legs in domesticated animals (unable to walk): The bark is boiled and ground with ragi. It is applied on the legs of the animals every morning for four days.

Food poisoning (stomach pain, diarrhea, weakness): The bark is ground and the paste is mixed in a glass of water. This is administered only once.

Boils on cattle's skin (due to excessive ploughing): The bark of *Pterocarpus marsupium*, *Bauhinia purpurea* and *Ficus sp.* are boiled, ground and applied on the affected parts with red soil for 3 days.

Body ache: The bark is ground with ragi and applied to the affected parts.

Food: Tender leaves are used as leafy vegetables. The seeds are edible.

24. ***Bauhinia racemosa*** Lam.

Local name: *Pachare* **Family:** Fabaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & Fruiting from Apr.-Dec. **Parts used:** Root bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10'23.6'' N 78°69'85.5'' E, 560 m, 06/06/2022, CM Manasvi, 126289 (FRLH)

Description: Bark blackish with deep vertical cracks. Leaves broader than long, cordate, entire, obtuse at apex, mucronate. Flowers white or yellow on sort pedicles; calyx turbinate, deeply 5-lobed. Pod twisted or falcate; seeds 10-20.

Uses:

***Janni* fever** i.e., postpartum infections (high fever, headache, arm & legs pain, eye pain, vomiting): An equal amount of root bark from *Capparis sepiaria*, *Bauhinia racemosa*, *Kleinia grandiflora*, *Pongamia pinnata, Benkara malabarica, Zanthoxylum asiaticum* and *Maclura spinosa* is dried and ground into a powder. It is roasted with oil in a *Lissemys punctata* shell. A lemon sized ball is orally administered with honey for 9 days in the morning and evening.

Rope: The stem fiber is used to make ropes.

Food: The flower buds and fruits are edible.

25. ***Benkara malabarica*** (Lam.) Tirveng.

Local name: *Pedalli* **Family:** Rubiaceae

Habit: Shrub **Habitat:** Dry deciduous forests

Phenology: Flowering & Fruiting season; Nov.-Apr. **Parts used:** Root bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°10'04.6'' N 78°69'41.4'' E, 570 m, 06/05/2022, CM Manasvi, 126277 (FRLH)

Description: Branchlets armed. Leaves opposite-decussate, obovate-oblanceolate, entire at margins. Flowers corymbose cyme, axillary; corolla pale white. Berry globose, reddish when ripe.

Uses:

Snakebite (*Raktha pinjari* i.e., Saw-scaled viper): The root is crushed and boiled in 200 ml of water and orally administered.

Snakebite (Saw-scaled viper, King cobra): First, the root bark is removed and powdered. It is mixed in 200 ml of hot water and immediately orally administered. Second, the leaves of *Ehretia microphylla* is crushed and mixed in 200 ml of hot water and orally administered. Third, with knife small slits are made in between the toes. Hence, the black venomous blood is removed from the body. A black thread is worn on both legs.

***Janni* fever i.e., postpartum infections** (high fever, headache, arm & legs pain, eye pain, vomiting): An equal amount of root bark from *Capparis sepiaria*, *Bauhinia racemosa*, *Kleinia grandiflora*, *Pongamia pinnata, Benkara malabarica, Zanthoxylum asiaticum* and *Maclura spinosa* is dried and ground into a powder. It is roasted with oil in a *Lissemys punctata* shell. A lemon sized ball is orally administered with honey for 9 days in the morning and evening.

26. ***Blumea obliqua*** (L.) Druce

Family: Asteraceae **Habit:** Herb

Habitat: Moist places **Phenology:** Flowering & fruiting from Oct.-Feb.

Parts used: Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°03'57.3"N 78°33'39.8"E, 570 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126534 (FRLH)

Description: Leaves ovate-oblong, margin dentate. Heads terminal, 1-2 per axillary, pinkish. Achenes oblong.

Uses:

Wounds: The leaves are crushed and applied to the affected area.

27. ***Boucerosia umbellata*** (Haw.) Wight & Arn.

Local name: *Kundeti kommulu* **Family:** Apocynaceae

Habit: Herb **Habitat:** Scrub jungle

Phenology: Flowering & fruiting from Mar.-Aug. **Parts used:** Stem

Distribution: Anantapur district, Chittoor district and Kadapa district of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'97.6'' N 78°56'14.2'' E, 557 m, 05/06/2022, CM Manasvi

Description: Stems angled. Leaves minute, deciduous. Flowers purple, in terminal umbels; corolla rotate. Follicles linear-lanceolate.

Uses:

Chutney: The tender stems (without flowers) are pounded with green chilies and salt. It is eaten with hot rice. They have it thrice a year. It prevents back pain.

Curry: The tender stems are cut into small sticks. It is boiled with tomato, onions, green chilies, and salt.

28. ***Bougainvillea spectabilis*** Willd.

Local name: *Kadalasupoovu-chettu* **Family:** Nyctaginaceae

Habit: Shrub **Habitat:** Planted

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Flowers

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03'38.4'' N 78°61'06.8'' E, 570 m, 05/06/2022, CM Manasvi, 126500 (FRLH)

Description: Branchlets thorns, curved. Leaves ovate, with rippling along the edges. Bracts colored; Flowers white.

Uses:

Ornamental value: The flowers are worn in the hair. It is planted in home gardens.

29. ***Breynia vitis-idaea*** (Burm.f.) C.E.C.Fisch.

Local name: *Erra gugathi* **Family:** Phyllanthaceae

Habit: Tree **Habitat:** Moist deciduous forests

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06'93.7'' N 78°56'16.6'' E, 568 m, 04/06/2022, CM Manasvi, 126253 (FRLH)

Description: Branchlets angular. Leaves alternate, elliptic, and glabrous. Flowers monoecious, axillary, minute. Male flowers minute, axillary fascicles. Drupes globose, red.

Uses:

Childbirth: The leaf is ground and the juice is given to a mother after childbirth for pain relief.

30. ***Buchanania axillaris*** (Desr.) Ramamoorthy

Local name: *Sara* **Family:** Anacardiaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jun.-Jan. **Parts used:** Fruit & gum

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06’77.0’’N 78°56’05.8’’ E, 528 m, 04/06/2022, CM Manasvi, 126274 (FRLH)

Description: Leaves simple, oblong, obtuse. Flowers pale white, in paniculate racemes.

Uses:

Food: The seeds & fruits are edible. The seeds are sold in the local market.

Gum: The gum is extracted from the stem.

Additional notes: Excessive consumption of fruits causes hypersalivation.

31. ***Cadaba fruticosa*** (L.) Druce

Family: Capparaceae **Habit:** Shrub

Habitat: Hedges **Phenology:** Flowering & fruiting season from Apr.-Nov.

Parts used: Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'09.1"N 78°33'46.9"E, 546 m, 06/04/2022, CM Manasvi, 126240 (FRLH)

Description: Branchlets unarmed. Leaves simple, elliptic-oblong, entire at margins. Inflorescence corymbs, terminal. Flowers pale white, in few flowered.

Uses:

Snakebite: The leaves are orally administered with one glass of water.

32. ***Calotropis gigantea*** R. Br

Local name: *Jilledu / Tella Jilledu* **Family:** Apocynaceae

Habit: Subshrub **Habitat:** Plains & roadside

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Stem

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'38.3"N 78°33'30.2"E, 78 m, 02/04/2022, CM Manasvi, 126209 (FRLH)

Description: Erect bushy. Leaves opposite-decussate, obovate. Flowers Whitish-purple, in umbellate cymes.

Uses:

Worship: The purple *Calotropis gigantea* (*Jilledu)* flowers are offered to God.

Migraine (one sided headache): During Solar Eclipse, stem fibre from the white *Calotropis gigantea (Tella Jilledu)* is made into a thread. It is tied to the opposite leg of the headache. Underneath the plant, pray to the sun, elders and guru that it gets better.

Additional notes: The purple *Calotropis gigantea* is known as *Jilledu.* The white *Calotropis gigantea* is known as *Tella Jilledu*. However, botanically it is the same species.

33. ***Canthium coromandelicum*** (Burm.f.) Alston

Local name: *Gara chettu* **Family:** Rubiaceae

Habit: Shrub **Habitat:** Scrub jungles

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Fruit & leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06’78.9’’ N 78°56’19.6’’ E, 537 m, 04/06/2022, CM Manasvi, 126268 (FRLH)

Description: Branchlets spinose. Leaves Ovate-elliptic, attenuate at the base, subacute at the apex. Flowers pale yellow, in axillary fascicled cymes.

Uses:

Food: The fruits are edible. The tender leaves are used as vegetables. It is used to make chutney and sambhar. The leaves without the thorns are boiled in goat milk and simple spices to make sambhar.

34. ***Capparis sepiaria*** L.

Local name: *Nallupi* **Family:** Capparaceae

Habit: Shrub **Habitat:** Scrub jungles

Phenology: Flowering & fruiting from Apr.-Jul. **Parts used:** Root bark

Distribution: Anantapur, Chittoor, Kadapa, East Godavari, Guntur, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Vishakapatnam, Vizianagaram and West Godavari districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86’75.9’’ N 78°57’08.1’’ E, 670 m, 08/07/2020, CM Manasvi, 126559 (FRLH)

Description: Branchlets spinescent, recurved. Leaves alternate, ovate-suborbicular, retuse at apex, glabrous. Inflorescence terminal, umbellate. Petals 4; obovate, glabrous.

Uses:

***Janni* fever i.e., postpartum infections** (high fever, headache, arm & legs pain, eye pain, vomiting): An equal amount of root bark from *Capparis sepiaria*, *Bauhinia racemosa*, *Kleinia grandiflora*, *Pongamia pinnata, Benkara malabarica, Zanthoxylum asiaticum* and *Maclura spinosa* is dried and ground into a powder. It is roasted with oil in a *Lissemys punctata* shell. A lemon sized ball is orally administered with honey for 9 days in the morning and evening.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

35. ***Capparis zeylanica*** L.

Local name: *Thotali theega* **Family:** Capparaceae

Habit: Climbing shrub **Habitat:** Scrub forests and Hedges

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’31.6’’ N 78°69’98.4’’ E, 558 m, 05/06/2022, CM Manasvi, 126295 (FRLH)

Description: Leaves alternate, ovate-obovate, obtuse-retuse at apex. Flowers pinkish-white, in supra-axillary umbels.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

36. ***Carissa carandas*** L.

Local name: *Kalimi* **Family:** Apocynaceae

Habit: Shrub **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Jan.-Jun. **Parts used:** Fruit

Distribution: Kadapa, Srikakulam, Visakhapatnam and Krishna districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'05.1"N 78°33'38.9"E, 530 m, 07/04/2022, CM Manasvi, 126259 (FRLH)

Description: Leaves ovate, elliptic or obovate. Flowers in cymes; corolla lobes 5. Berries, globose, ellipsoid, reddish when ripe.

Uses:

Food: Fruits are edible. The ripe fruits are pickled. The raw fruits are pounded with green chilies and eaten.

37. ***Cassia fistula*** L.

Local name: *Rala mannu* **Family:** Fabaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Mar.-Dec. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°01'40.0"N 78°36'35.5"E, 545 m, 05/04/2022, CM Manasvi, 126223 (FRLH)

Description: Leaves pinnately compound; leaflets 5-9, ovate, acute at apex, glabrous. Flowers yellow, in axillary racemes. Pods long, cylindrical, terete, up to 36 cm long

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Wood: The wood is used to make carts.

Additional notes: Bears enjoy eating flowers.

38. ***Catharanthus roseus*** (L.) G.Don

Local name: *Billaganneru* **Family:** Apocynaceae

Habit: Shrub **Habitat:** Garden

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Flowers

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°01'40.0"N 78°36'35.5"E, 594 m, 05/07/2022, CM Manasvi, 126493 (FRLH)

Description: Leaves elliptic, entire at maigins glabrous,. Flowers white and pink in axillary pairs, shortly pedicellate. Mericarps puberulous and ribbed. Seeds ellipsoid, blackish when dry.

Uses:

Earache: The juice is extracted from a few flowers and 2 drops is poured into the ear.

Ornamental value: It is planted on roads.

39. ***Catunaregam spinosa*** (Thunb.) Tirveng.

Local name: *Manga chettu* **Family:** Rubiaceae

Habit: Shrub **Habitat:** Scrub forests & Hedges

Phenology: Flowering & fruiting from Mar.-Jul. **Parts used:** Fruit

Distribution: Anantapur, Chittoor, Kadapa, East Godavari, Guntur, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Vishakapatnam, Vizianagaram and West Godavari districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'09.4"N 78°33'46.1"E, 546 m, 03/06/2022, CM Manasvi, 126211 (FRLH)

Description: Leaves clustered, obovate-oblanceolate, lateral nerves 7-9 pairs. Flowers white, axillary, solitary. Berries spherical, green, calyx persistent.

Uses:

Shampoo: The dried fruits of *Albizia amara*, *Catunaregam spinosa* & *Sapindus emarginatus* are ground in 1:1:1 proportion. The powder is used to cleanse hair and reduce dandruff.

40. ***Celastrus paniculatus*** Willd.

Local name: *Ganga theega* **Family:** Celastraceae

Habit: Climbing shrub **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Mar.-Dec. **Parts used:** Whole plant

Distribution: East Godavari, Kurnool, Vishakapatnam, Chittoor, Kadapa, West Godavari and Srikakulam districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'05.1"N 78°33'38.9"E, 540 m, 05/04/2022, CM Manasvi, 126571 (FRLH)

Description: Stem bark pink. Leaves alternate, ovate or obovate, serrate at margins. Flowers pale greenis-yellow in terminal paniculate cymes.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The whole plant is used to make Uppu Chakka. It keeps them healthy and improves fertility.

41. ***Celosia argentea*** L.

Local name: *Gurugu aku* **Family:** Amaranthaceae

Habit: Herb **Habitat:** Wastelands

Phenology: Flowering & fruiting from Oct.-Feb. **Parts used:** Leaf, stem & flower

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'36.3"N 78°33'29.2"E, 572 m, 02/04/2022, CM Manasvi, 126207 (FRLH)

Description: Leaves variable linear, ovate-lanceolate, entire at margins, tapering at both ends. Flowers white- pinkish in terminal spikes.

Uses:

Food: The leaves, tender stems, and young flower spikes are boiled with turmeric, chili powder, and tamarind.

42. ***Ceriscoides turgida*** (Roxb.) Tirveng.

Local name: *Bajji manga* **Family:** Rubiaceae

Habit: Shrub **Habitat:** Moist deciduous forest

Phenology: Flowering & fruiting from Nov.-Jan. **Parts used:** Bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06'10.6"N 78°41'55.1"E, 520 m, 02/04/2022, CM Manasvi, 126572 (FRLH)

Description: Leaves obovate, obtuse at base, acute at apex, pubescent. Corolla white, 5-lobed; tube 1-1.5 cm long. Berries orbicular, yellowish-brown, with 4-6 placentas, to 6 cm across.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

43. ***Ceropegia candelabrum*** var. ***biflora*** (L.) Ansari

Local name: *Mekka namatai* **Family:** Apocynaceae

Habit: Climber **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jun.-Nov. **Parts used:** Root

Distribution: Srikakulam, Visakhapatnam, Guntur and East Godavari districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’62.2’’ N 78°70’00.0’’ E, 565 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126548 (FRLH)

Description: Stem glabrous. Leaves ovate-oblong, glabrous. Flowers in lateral umbellate cymes, lobes ciliate and beaked.

Uses:

Food: The root is boiled and eaten.

44. ***Chloroxylon swietenia*** DC.

Local name: *Billi* **Family:** Rutaceae

Habit: Tree **Habitat:** Dry Deciduous Forests

Phenology: Flowering & fruiting from Feb.-Jul. **Parts used:** Bark

Distribution: Guntur, Chittoor, Vishakapatnam and Prakasam districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'03.9"N 78°33'54.3"E, 589 m, 06/04/2022, CM Manasvi, 126242 (FRLH)

Description: Leaves paripinnate; leaflets rhomboid-oblong, oblique at base, gland-dotted. Flowers pale white, in terminal and axillary panicles.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Wound: The leaves are crushed and applied to the wound.

Additional notes: The plant is classified as 'Vulnerable' in the IUCN Red List of Threatened Species. This species is quite abundant in this region.

45. ***Chromolaena odorata*** (L.) R.M.King & H.Rob.

Local name: *Podapatri* **Family:** Asteraceae

Habit: Undershrub **Habitat:** Roadside, wastelands

Phenology: Flowering & fruiting from Dec.-May **Parts used:** Leaf

Distribution: Visakhapatnam, Vijayanagaram, Srikakulam, and Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'06.6"N 78°33'44.2"E, 528 m, 03/04/2022, CM Manasvi, 126218 (FRLH)

Description: Leaves simple, ovate, crenate-dentate, acuminate at margins. Flowers purplish-white, in heads. Pappus white-hairy.

Uses:

Wound: The leaf is ground and applied to the affected parts.

46. ***Cipadessa baccifera*** (Roxb. ex Roth) Miq.

Local name: *Erra googati* **Family:** Meliaceae

Habit: Shrub **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Oct.-Apr. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06’90.3’’ N 78°56’24.2’’ E, 552 m, 04/06/2022, CM Manasvi, 126263 (FRLH)

Description: Leaves imparipinnate; leaflets elliptic-lanceolate, coarsely serrate at margins. Flowers greenish-white, in axillary corymbose panicles.

Uses:

Snakebite (King cobra)**:** The leaves are crushed and orally administrated immediately after the bite.

47. ***Cissus quadrangularis*** L.

Local name: *Dabba Nalleri* **Family:** Vitaceae

Habit: Climber **Habitat:** Wastelands

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Whole plant**,** stem & leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'14.0"N 78°42'08.1"E, 560 m, 06/05/2022, CM Manasvi, 126545 (FRLH)

Description: Stems 4-angled. Leaves alternate, entire or lobed at margins, ovate or reniform. Flowers pale brown, in short, peduncled umbellate cymes. Berries red.

Uses:

Takada **i.e., to remove a curse** in domesticated animals (loss of appetite, blurry vision, low milk supply)**:** A piece of the climber is placed in a junction (intersection of four paths). Once the animals cross the climber, the curse is removed. The piece of climber should be removed, if someone breaks it in half, the animals will be cursed again.

Uppu chakka (cleanses palate, improves digestion, and increases milk production in cattle): The whole plant is used in *Uppu Chakka*.

Takada **i.e., to remove a curse** in domesticated animals (loss of appetite, blurry vision): The leaves of *Cissus quadrangularis*, *Senna auriculata, sagurti/chegurthi,* and

Azadirachta indica is mixed with boiled rice. Every Sunday for three to four months, the domesticated animals are fed this blend.

Food: The tender stems are fried in oil and ground into a chutney with onions, garlic, and green chilies. It is had with rice or ragi once a week.

48. ***Cleistanthus collinus*** (Roxb.) Benth. ex Hook. f.

Local name: *Vadichilli* **Family:** Phyllanthaceae

Habit: Small tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Sept.-Dec. **Parts used:** Fruit, bark & leaf

Distribution: Anantapur, Chittoor, Kadapa, East Godavari, Guntur, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Vishakapatnam, Vizianagaram and West Godavari districts of Andhra Pradesh (Sankara et al., 2005).

Specimen collected: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°10’62.4’’ N 78°69’91.4’’ E, 554 m, 05/06/2022, CM Manasvi, 126300 (FRLH)

Description: Leaves elliptic oblong-obovate, rounded emarginate, glaucous beneath. Flowers in axillary clusters, silky, villous. Fruits globose, c. 1.5 cm across.

Uses:

Poison: The consumption of leaves or fruit causes immediate death. It is used to kill fish.

Tanning: The bark, leaves, and green fruits are used in tanning cloths.

Additional notes: The plant is classified as 'Vulnerable' in the IUCN Red List of Threatened Species.

49. ***Cleome viscosa*** L.

Local name: *Adavi sasulu* **Family:** Cleomaceae

Habit: Herb **Habitat:** Fields & wasteland

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Leaf & stem

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86’52.2’’ N 78°57’17.9’’ E, 640 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126560 (FRLH)

Description: Leaves 3-5 foliolate; leaflets obovate-oblong, obtuse-retuse at apex, glandular-viscid pubescent. In terminal racemes; yellow. Flowers in simple pedunculate cymes. Peats 4, yellow.

Uses:

Food: The leaves and young stems are cooked as a vegetable. It has a mustard-like taste.

50. ***Clitoria ternatea*** L.

Family: Fabaceae **Habit:** Climber

Habitat: Cultivated **Phenology:** Flowering & fruiting from Sept.-Feb.

Parts used: Flowers

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’21.6’’N 78°61’00.4’’ E, 594 m, 05/07/2022, CM Manasvi, 126495 (FRLH)

Description: Branchlets appressed tomentose. Leaves odd-pinnate, leaflets 2 or 3 pairs. Flowers bluish-violet with yellow streaks or white, axillary, solitary.

Uses:

Ornamental value: It is planted in home gardens.

51. ***Coccinia grandis*** (L.) Voigt

Local name: *Donda kaaya* **Family:** Cucurbitaceae

Habit: Climber **Habitat:** Planted

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Fruit

Distribution: All of the districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: Mudaramdoddi, 13°02’11.1’’ N 78°52’81.5’’ E, 642 m, 07/06/2022, CM Manasvi, 126479 (FRLH)

Description: Tendrils simple. Leaves alternate, cordate, 3-5-lobed. Flowers white; male flowers fascicled; female solitary.

Uses:

Food: The fruits are edible.

52. ***Cocculus hirsutus*** (L.) W.Theob.

Local name: *Dusara theege* **Family:** Menispermaceae

Habit: Climber **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: Anantapur, Chittoor, Kadapa, East Godavari, Guntur, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Vishakapatnam, Vizianagaram and West Godavari districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'08.7"N 78°33'46.2"E, 527 m, 03/04/2022, CM Manasvi, 126214 (FRLH)

Description: Leaves simple, ovate-oblong, obtuse, rarely lobed, softly tomentose. Flowers pale yellow, in axillary panicles. Drupes ovoid-subglobose, dark purple when ripe

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The whole plant is used to make *Uppu Chakka*.

Food: The tender leaves are used as vegetable.

53. ***Commiphora caudata*** (Wight & Arn.) Engl.

Local name: *Nethi mamadi* **Family:** Burseraceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Mar.-Oct. **Parts used:** Bark & fruit

Distribution: Chittoor, Kadapa, Guntur and Visakhapatnam districts of Andhra Pradesh (Pullaiah & Ramamurthy, 2001).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12.890851 78.573033, 605 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126492 (FRLH)

Description: Bark papery. Leaves imparipinnate; leaflets ovate-lanceolate, acuminate at apex. Flowers greenish-red, in long peduncled dichasial cymes.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*. It gives an aromatic fragrance.

Food: The fruits are edible. They are also pickled.

54. ***Crossandra infundibuliformis*** (L.) Nees

Local name: *Kankabaram* **Family:** Acanthaceae

Habit: Herb **Habitat:** Planted

Phenology: Flowering & fruiting from Jul.-Apr. **Parts used:** Flower

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126511 (FRLH)

Description: Leaves elliptic-oblong, entire at margins, acute at apex, glabrousFlowers in axillary and terminal dense spikes, sessile. Corolla orange-scarlet. Capsule oblong, seeds.

Uses:

Ornamental value: The flowers are worn in the hair. It is planted in home gardens.

55. ***Croton bonplandianus*** Baill.

Local name: *Kosum paal* **Family:** Euphorbiaceae

Habit: Climber **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06'70.2'' N 78°56'06.0'' E, 502 m, 04/06/2022, CM Manasvi, 126273 (FRLH)

Description: Leaves simple, ovate, obovate-oblong, obtuse at apex, glabrous. Spikes terminal; flowers white.

Uses:

Skin rashes: The leaves are crushed and applied to the affected part.

56. ***Cryptolepis buchananii*** R.Br. ex Roem. & Schult.

Local name: *Chinna paal theega* **Family:** Apocynaceae

Habit: Climber **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Mar.-Apr. **Parts used:** Stem

Distribution: Kurnool, West Godavari, Srikakulam, Adilabad, and Krishna districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86'69.9'' N 78°57'15.4'' E, 650 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126561 (FRLH)

Description: Stem smooth, dark brown Leaves narrowly ovate, oblong, coriaceous, glaucous beneath. Follicles paired, stout, glabrous.

Uses:

Rope: The stem fiber is used to make ropes.

57. ***Curculigo orchioides*** Gaertn.

Local name: *Adavi taita gada* **Family:** Hypoxidaceae

Habit: Herb **Habitat:** Grasslands & plains

Phenology: Flowering & fruiting from Apr.-Dec. **Parts used:** Whole plant

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86’59.8’’ N 78°57’33.5’’ E, 675 m, 08/06/2022, CM Manasvi, 126487 (FRLH)

Description: Leaves linear-lanceate, plicate, sparsely softly whitish hairy or sometimes glabrous. Flowers yellow, in axillary simple raceme.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The whole plant is used to make *Uppu Chakka*.

58. ***Cyanotis adscendens*** (Dalz.)

Local name: *Aegogli gadda* **Family:** Commelinaceae

Habit: Herb **Habitat:** Rocky terrain

Phenology: Flowering & fruiting from Aug.-Sept. **Parts used:** Fruit & leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86’61.4’’ N 78°57’28.6’’ E, 679 m, 05/06/2022, CM Manasvi, 126470 (FRLH).

Description: Stem swollen and densely villous at base. Leaves linear ensiform, silky villous beneath. Flowers bluish-purple, in terminal and axillary cymes, bracts equal or shorter than cymes.

Uses:

Insect (lives in tunnels in the ground, bites in the night) **bite for animals and humans** (small boils spread all over the body, itchy): The tuber is boiled and ground into a paste. It is applied to the affected area a minimum of three times.

Additional notes: It is named after the insect *Aegogli.*

59. ***Cynanchum sarcomedium*** Meve & Liede

Local name: *Pullangi theega* **Family:** Apocynaceae

Habit: Climber **Habitat:** Foothills of deciduous forests

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Latex & leaf

Distribution: Endemic to Peninsular India

All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’28.1’’ N 78°69’91.1’’ E, 575 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126544 (FRLH)

Description: Branches terete, green, glabrous, milk-latex. Leaves absent. Flowers in terminal, many-flowered umbels, pedicels erect.

Uses:

Boils on feet: The latex is applied to the affected area.

Fodder: The leaves are used as fodder for goats.

60. ***Decalepis hamiltonii*** Wight & Arn.

Local name: *Maredu gadlu* **Family:** Apocynaceae

Habit: Climber **Habitat:** Thickets & bushes

Phenology: Flowering & fruiting from Apr.-Sept. **Parts used:** Tuber

Distribution: Endemic to peninsular India

Anantapur, Kurnool, Kadapa, Nellore and Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°04'33.1"N 78°33'29.4"E, 580 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126286 (FRLH)

Description: Leaves, opposite, ovate, attenuate at base, obtuse at apex. Flowers pale yellow, in axillary, peduncled cymes.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The tuber is used to make *Uppu Chakka*.

Food: The tuber is pickled with red chilli powder, turmeric powder, mustard seeds, fenugreek seeds and salt.

61. ***Delonix elata*** (L.) Gamble

Local name: *Vathanarayana* **Family:** Fabaceae

Habit: Tree **Habitat:** Planted

Phenology: Flowering & fruiting from Dec.-Jun. **Parts used:** -

Distribution: This is occasionally reported in the districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°05'03.7"N 78°35'25.7"E, 567 m, 06/04/2022, CM Manasvi, 126249 (FRLH)

Description: Grey to pale brown bark. Leaves pinnately compound; leaflets oblong. Flowers in red, terminal, paniculate cymes.

Uses:

Ornamental value: It is planted on roads.

62. ***Dendrocalamus strictus*** Roxb.

Local name: *Veduru* **Family:** Poaceae

Habit: Monocarpic arborescent herb **Habitat:** Scrub forests

Phenology: Flowering & fruiting from Apr.-May **Parts used:** Culm

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°05'03.7" N 78°35'25.7" E, 580 m, 02/04/2022, CM Manasvi

Description: Branches drooping, sheath covered with golden brown coloured hairy. Leaves nearly 10 x 2 cm. Spikelet are in dense globose head.

Uses:

Bone fracture: For goats or sheep, the latex of the *Euphorbia antiquorum* is applied to a cotton cloth and tightly bound to the wound. The dried culm of *Dendrocalamus strictus* is used to support. It stays put for 15 days to 1 month. Till the cloth naturally falls.

63. ***Dendrophthoe falcata*** (L.f.) Ettingsh.

Local name: *Bajeneeka* **Family:** Loranthaceae

Habit: Stem parasite **Habitat**D deciduous forests

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: Mudaramdoddi, 13°00’12.5’’ N 78°55’40.5’’ E, 587 m, 06/06/2022, CM Manasvi, 126475 (FRLH)

Description: Branches terete, Leaves opposite, ovate-lanceate or oblong. Flowers orange-red, in axillary racemes.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

64. ***Dichrostachys cinerea*** (L.) Wight & Arn.

Local name: *Eduthili* **Family:** Fabaceae

Habit: Shrub **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf & wood

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'10.0"N 78°33'42.5"E, 570 m, 06/06/2022, CM Manasvi, 126522 (FRLH)

Description: Leaves bipinnately compound; leaflets very small linear, oblique at base. Flowers in cylindrical spikes; upper bisexual, yellow; lower sterile, pink. Pods linear, twisted.

Uses:

Wood: It is used as fuel wood and to make walking sticks and household furniture.

Fodder: The leaves are used as fodder for cattle.

65. ***Dioscorea oppositifolia*** L.

Local name: *Adavi ganchi gadda / Adavi gansu* **Family:** Dioscoreaceae

Habit: Climber **Habitat:** Along streams

Phenology: Flowering & fruiting from Aug.-Nov. **Parts used:** Root

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86’54.9’’ N 78°57’23.0’’ E, 675 m, 08/06/2022, CM Manasvi, 126285 (FRLH)

Description: Leaves opposite, broadly elliptic, oblong or ovate. Flowers greenis-yellow.

Uses:

Food: The root is boiled with salt, jaggery & milk. Alternatively, it is boiled and eaten with sambhar or chutney. The root is also eaten by wild boars.

Additional notes: This is usually consumed during the winter season, especially in December.

66. ***Diospyros chloroxylon*** Roxb.

Local name: *Pedda ullingi* **Family:** Ebenaceae

Habit: Tree **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Jul.-Feb. **Parts used:** Fruit & leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°02'11.0"N 78°36'37.2"E, 540 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126532 (FRLH)

Description: Leaves alternate, oblong-obovate, obtuse at apex. Flowers white; male 6-7, in capitate cymes; female solitary.

Uses:

Food: The fruits are edible and are sour in taste. The tender leaves are used as vegetable. It is eaten by animals too.

67. ***Diospyros ferrea*** (Willd.) Bakh.

Local name: *Chinna ullingi* **Family:** Ebenaceae

Habit: Small tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Feb.-Jun. **Parts used:** Fruit & wood

Distribution: Anantapur, Nellore, Vishakapatnam, West Godavari, Kadapa, and Srikakulam districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86'82.4'' N 78°56'89.2'' E, 683 m, 07/06/2022, CM Manasvi, 126481 (FRLH)

Description: Bark grey. Leaves alternate, elliptic, coriaceous, glabrous above. Flowers white, male flowers in short cymes, stamens 6, female 10-13 together. Berries orange when ripe.

Uses:

Food: The fruits are edible and are sold commercially.

Wood: It is used to make matchboxes.

68. ***Diospyros melanoxylon*** Roxb.

Local name: *Tumuki* **Family:** Ebenaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Oct.-Apr. **Parts used:** Fruit & leaf

Distribution: All districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'36.6"N, 78°33'03.6"E, 550 m, 06/04/2022, CM Manasvi, 126529 (FRLH)

Description: Leaves elliptic narrowed at both ends, highly tomentose when young. Flowers in panicles of drooping cymes.

Uses:

Bone fracture: The fruits are crushed and this sticky liquid is applied to the affected areas. It can be used instead of *Euphorbia antiquorum* to treat a bone fracture.

Food: The fruits are edible.

Recreation: The young leaves are used to roll beedi (local cigarette).

69. ***Diospyros montana*** Roxb.

Local name: *Gota gota* **Family:** Ebenaceae

Habit: Tree **Habitat:** Scrub jungles & Hill slopes

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13.074064 78.559061, 567 m, 03/06/2022, CM Manasvi, 126531 (FRLH)

Description: Leaves alternate elliptic-ovate, rounded to truncate at base. Male flowers in axillary umbels. Female solitary, axillary.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Additional notes: It is believed that using the wood from the tree will cause fights in the family.

70. ***Diplocyclos palmatus*** (L.) C.Jeffrey

Local name: *Bundankai / saralakai* **Family:** Cucurbitaceae

Habit: Climber **Habitat:** Hedges

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Fruit

Distribution: West Godavari, Kadapa, Chittoor, Vishakapatnam, Srikakulam and West Godavari districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’09.3’ N 78°69’70.0’ E, 550 m, 05/06/2022, CM Manasvi, 126269 (FRLH)

Description: Leaves alternate, palmately lobed, denticulate at margins; tendrils 2-fid. Flowers paleyellow.

Uses:

Ticks: The fruit is crushed and a few drops are poured in the ear.

Additional notes: The fruits attract many birds.

71. ***Dodonaea viscosa*** (L.) Jacq.

Local name: *Bandare* **Family:** Sapindaceae

Habit: Shrub **Habitat:** Open scrubs & waste places

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Stem

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°03'49.9"N 78°33'50.8"E, 560 m, 06/04/2022, CM Manasvi, 126244 (FRLH)

Description: Leaves alternate, linear-oblong. Inflorescence in panicle of racemes. Fruits globose, winged.

Uses:

Bone fracture: For goats or sheep, the latex of the *Euphorbia antiquorum* is applied to a cotton cloth and tightly bound to the wound. Dried sticks of *Dodonaea viscosa* or *Dendrocalamus strictus* are used to support. It stays put for 15 days to 1 month. Till the cloth naturally falls.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The dried sticks are used to cure ethnoveterinary ailments.

72. ***Dolichandrone atrovirens*** (Roth) K.Schum.

Local name: *Vaddi / Erra odhi* **Family:** Bignoniaceae

Habit: Tree **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from May-Jun. **Parts used:** Leaf & wood

Distribution: Endemic to Peninsular India

Nellore, Anantapur, Chittoor, Kadapa and Kurnool district of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’46.2’’ N 78°69’97.4’’ E, 557 m, 05/06/2022, CM Manasvi, 126299 (FRLH)

Description: Leaves imparipinnate, leaflets opposite, 5-7, elliptic. Inflorescence paniculate cymes. Calyx cylindric, spathaceous, 4.5 cm long. Flowers tubular, c. 5.5 cm long, white

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The leaves are used to make *Uppu Chakka*.

Plough: The wood is used as a plough. The wood is soft and does not harm the cattle.

73. ***Dracaena roxburghiana*** (Schult. & Schult.f.) Byng & Christenh.

Local name: *Adavi joga* **Family:** Asparagaceae

Habit: Herb **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jun.-Aug. **Parts used:** Whole plant

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°11’30.0’’ N 78°69’85.7’’ E, 560 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126530 (FRLH)

Description: Leaves tuft, towards the middle, sub-erect, rigid, pale green with dark green bands. Inflorescence racemes, erect, up to 35 cm long. Flowers greenish-white tinged violet..

Uses:

Ornamental value: It is planted in home gardens.

74. ***Dysphania ambrosioides*** (L.) Mosyakin & Clemants

Local name: *Kishuru akku* **Family:** Amaranthaceae

Habit: Herb **Habitat:** Dry scrub forests & waste places

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: Vishakapatnam district of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86’75.6’’ N 78°57’07.9’’ E, 670 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126565 (FRLH)

Description: Leaves linear-lanceolate, coarsely serrate-dentate or entire at margins. Flowers usually in axillary clusters or in leafy spikes, sessile. Perianth green.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Additional notes: It is to native north America and is a naturalized weed found commonly around the road.

75. ***Eclipta prostrata*** (L.) L.

Family: Asteraceae **Habit:** Herb

Habitat: Moist localities **Phenology:** Flowering & fruiting from Jan.-Dec.

Parts used: Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86’54.9’’ N 78°57’24.7’’ E, 670 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126562 (FRLH)

Description: Leaves oblong-lanceolate, serrulate at margins. Heads terminal or axillary, heterogamous, white.

Uses:

Swelling: The leaf is ground and applied on the affected area.

76. ***Ehretia microphylla*** Lam.

Local name: *Nakka thoku* **Family:** Boraginaceae

Habit: Shrub **Habitat:** Scrub jungles & hill slopes

Phenology: Flowering & fruiting from Oct.-Mar. **Parts used:** Leaf & fruit

Distribution: Anantapur, Chittoor, Kadapa, East Godavari, Guntur, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Vishakapatnam, Vizianagaram, and West Godavari districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’13.4” N 78°69’85.7” E, 520 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126552 (FRLH)

Description: Leaves ovate-obovate to oblong, retuse at apex. Flowers solitary axillary, 1-2 per each ndoe. Corolla campanulate, white. Drupe bright red when ripe, four-seeded.

Uses:

Snakebite (any species): The root bark of *Benkara malabarica* is removed and crushed. It is mixed in 200 ml of hot water. The leaves of *Ehretia microphylla* is crushed and applied in the small slits in between the toes. A black thread is worn on both the legs.

Food: The yellow berries are edible.

77. ***Endostemon viscosus*** (Roth) M.R.Ashby

Local name: *Molaka chedi* **Family:** Lamiaceae

Habit: Herb **Habitat:** Scrub jungles & rocky slopes

Phenology: Flowering & fruiting from Jul-Jan. **Parts used:** Leaf

Distribution: Annamayya, Anantapur, Chittoor, Kadapa, Kurnool, Nandyal, Sri Sathya Sai and Tirupati districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra,13°06'03.1"N, 78°41'41.4"E, 560 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126461 (FRLH)

Description: Branches densely viscid-pubescent. Leaves ovate, crenate at margins, obtuse at apex, densely pubescents. Inflorescence racemes, terminal. Corolla 2-lobed, pink-purpulish.

Uses:

Ethnoveterinary ailment (inactive, watery eyes, and decrease in appetite): One hundred grams of the leaf is dried in the sun for 3 days. It is crushed with about 80g of sambrani

and a pinch of turmeric. The powder is lit with *Dodonaea viscosa* sticks in the shed with the affected animals for three consecutive Sundays.

Eye infection: A few leaves are ground into a paste and the juice is extracted. Use one drop in the eye.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The whole plant is used to make *Uppu Chakka*.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Additional notes: This plant is collected during Amavasya as it is believed they are powerful during this time. It is very fragrant.

78. ***Erythroxylum monogynum*** Roxb.

Local name: *Devadaru* **Family:** Erythroxylaceae

Habit: Shrub **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Sept.-Mar. **Parts used:** Leaf & shoot

Distribution: Chittoor, Kurnool and Kadapa districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06’81.2’’ N 78°56’22.3’’ E, 553 m, 06/06/2022, CM Manasvi, 126463 (FRLH)

Description: Bark brownish white, peeling off. Leaves, alternate, obovate, obtuse at apex, glabrous. Flowers white, in axillary clusters.

Uses:

Intestinal worms: The leaves are crushed with black pepper and the extract is orally administered to kill the intestinal worms.

Food: The leaves and young shoots are eaten as a vegetable. It is considered to be an immune booster.

Additional notes: It is believed if you eat *Erythroxylum monogynum* once a week, you go to heaven after death.

79. ***Eulophia graminea*** Lindl.

Local name: *Gunta kalagara* **Family:** Orchidaceae

Habit: Terrestrial herb **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Feb.-Jun. **Parts used:** -

Distribution: East Godavari, Visakhapatnam district of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°11’29.9’’ N 78°69’86.0’’ E, 568 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126543 (FRLH)

Description: Leaves Linear-lanceolate, acuminate at apex. Scape lateral, 10-flowered. Flowers whitish-violet, . Sepals and petal subequal;sepels spathulate-lanceolate;petals broadly oblong, lip sessile, shorter than sepals and petals.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

80. ***Euphorbia antiquorum*** L.

Local name: *Bonthe Kalli mannu* **Family:** *Euphorbiaceae*

Habit: Tree **Habitat:** Open plains & rocky terrain

Phenology: Flowering & fruiting from Dec.-Feb. **Parts used:** Latex, phylloclade & stem

Distribution: This is commonly found in the Kurnool and Srikakulam districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'03.1"N 78°41'41.4"E, 553 m, 05/06/2022, CM Manasvi

Description: Succulent shrub, phylloclade bearing sharp spines, branches not twisted, cocci bluntly angled. Leaves, obovate-oblong. Cyanthia in axillary cymes.

Uses:

Bone fracture: For goats or sheep, the latex of the *Euphorbia antiquorum* is applied to a cotton cloth and tightly bound to the wound. The dried culm of *Dendrocalamus strictus* is used to support. It stays put for 15 days to 1 month. Till the cloth naturally falls.

Internal wound (no visible wound, only swelling): The latex is applied to the affected parts.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The phylloclade is used to cure ethnoveterinary ailments.

Commercial value: When the tree dies, the phylloclades are collected and dried. It is sold for 10 rupees per kg to Sambrani factories.

Additional notes: The latex is handled with caution as it causes skin inflammation i.e., small boils, redness, and swelling of the face. This is locally known as the male (*maga*) tree. The female (*aadu*) tree is *Euphorbia tortilis*.

81. ***Euphorbia deccanensis*** V.S.Raju

Local name: *Jerri kal akku* **Family:** Euphorbiaceae

Habit: Herb **Habitat:** Hills slope

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Bark & leaf

Distribution: Endemic to Andhra Pradesh and Telangana state

Anantapur district, Chittoor district, Kadapa district and East Godavari district of Andhra Pradesh (Ramakrishna et al., 2022).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°11’03.6’’ N 78°70’08.3’’ E, 562 m, 05/06/2022, CM Manasvi, 126458 (FRLH)

Description: Stem unbranched, nodes thickened, internodes terete. Leaves linear-lanceolate, mid vein prominent, oblique at base, distinctly serrate at margins. Inflorescence cyathia white or pink, terminal, solitary, glands-4, transversely oblong.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The whole plant is used to cure ethnoveterinary ailments.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

82. ***Euphorbia fusiformis*** Buch.-Ham. ex D.Don

Local name: *Sepu gaddalu / Paal gada* **Family:** Euphorbiaceae

Habit: Herb **Habitat:** Scrub Forest

Phenology: Flowering & fruiting from Feb.-Sept. **Parts used:** Root bark

Distribution: Annamayya, Anantapur, Chittoor, Kadapa, Kurnool, Nandyal, Sri Sathya Sai and Tirupati districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°04'10.0"N 78°33'42.5"E, 580 m, 05/06/2022, CM Manasvi

Description: A stem reduced to a stout, sub-cylindric perennial rootstock. Leaves radical, fleshy, oblanceolate, cuneate at base, often spotted with brown.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The root bark is used in Uppu Chakka. It helps increase milk production.

Fodder (*Kodathi)*: The root with paddy husk (remnant after dehusking rice), groundnut refuse (remnant of groundnut oil) and toor dal (*Cajanus cajan*) is mixed and fed to cattle. This increases milk production in Jersey and Holstein cattle.

83. ***Euphorbia hirta*** L.

Local name: *Nana pallu* **Family:** Euphorbiaceae

Habit: Herb **Habitat:** Wastelands

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Latex

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 06/06/2022, CM Manasvi, 126506 (FRLH)

Description: Leaves opposite, ovate, elliptic or lanceolate, serrate at margins, acute at apex. Inflorescence cyathia greenish, in axillary cymes. Seeds 4-angled.

Uses:

Cuts or wounds: The latex is applied on the affected areas.

84. ***Euphorbia tirucalli*** L.

Local name: *Kola kalli* **Family:** Euphorbiaceae

Habit: Shrub **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Jan.-Apr. **Parts used:** Latex

Distribution: Annamayya, Anantapur, Chittoor, Kadapa, Kurnool, Nandyal, Sri Sathya Sai and Tirupati districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’13.4’’ N 78°69’85.7’’ E, 579 m, 07/07/2022, CM Manasvi & Arun Kumar N

Description: Branches zig-zag. Leaves deciduous, linear. Inflrescence cyathia, green, terminal.

Uses:

Indigestion (stomach aches and growls, body heat, and diarrhoea 2 to 4 times a day): Apply 2 tablespoonfuls of latex with some turmeric below the knee and around the navel. It is administered a maximum of 3 times.

85. ***Euphorbia tortilis*** Rottler ex Ainslie

Local name: *Kalli mannu* **Family:** Euphorbiaceae

Habit: Shrub **Habitat:** Scrub jungles

Phenology: Flowering & fruiting from Feb.-May **Parts used:** Latex

Distribution: Nellore district & Chittoor district of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'03.1"N, 78°41'41.4"E, 545 m, 07/07/2022, CM Manasvi & Arun Kumar N

Description: Branchlets succulent, 3-winged, rarely 4, twisted with sharp spines. Leaves deciduous fleshy obovate-oblong. Spine up to 10 mm long.

Uses:

Joint pain & muscle pain: The latex of the plant is applied (using a brush) on the affected parts. The soil under the plant is plastered on the latex. Turmeric can be used as an alter to the soil. The pain subsides for 2 days. It is re-applied when the pain resurges. It is used for humans, cattle, goats, and sheep.

Joint pain: An inch of the root, a tablespoon of cumin, few pepper pods and two garlic pods are ground into a fine powder. A tablespoon of the powder is mixed in a glass of water. It is orally administered once a day for 4 days. It is repeated when the pain resurges.

Additional notes: This is locally known as the female (*addu*) tree. The male (*maga*) tree is *Euphorbia antiquorum*.

86. ***Evolvulus alsinoides*** (L.) L.

Local name: *Suryakanthi* **Family:** Convolvulaceae

Habit: Herb **Habitat:** Moist deciduous forests

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Whole plant

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86’55.9’’ N 78°57’22.0’’ E, 674 m, 05/05/2022, CM Manasvi, 126278 (FRLH)

Description: Leaves elliptic-lanceolate, ciliate at margins, acute at apex, pubescent. Flowers solitary, axillary, 1-2 per each node; pedicle up tp 15 mm long. Corolla campanulate, c. 9 mm across, blue.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The whole plant is used to cure ethnoveterinary ailments.

87. ***Ficus benghalensis*** L.

Local name: *Marri* **Family:** Moraceae

Habit: Tree **Habitat:** Dry deciduous forest & plains

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Fruit & leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'10.1"N 78°33'44.8"E, 560 m, 06/04/2022, CM Manasvi

Description: Branches spreading, prop roots copious, whitish. Leaves alternate, broadly ovate, obtuse at apex;petiole 3.5-5 cm long, thick, glabrous. Syconia in axillary pairs, globose, red when ripe.

Uses:

Food: The fruits dried & eaten. The leaves are used as fodder during the drought season.

Leaf plates: The leaves are dried and stitched into plates.

88. ***Ficus religiosa*** L.

Local name: *Ragi* **Family:** Moraceae

Habit: Tree **Habitat:** Planted

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°01'47.7"N 78°36'30.8"E, 514 m, 05/04/2022, CM Manasvi

Description: Leaves alternate, ovate-cordate, rounded-cordate at base, caudate at apex, glabrous;petiole 4-5 cm long, glabrous. Syconia in axillary pairs, globose, pink when ripe.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

89. ***Furcraea foetida*** (L.) Haw.

Local name: - **Family:** Asparagaceae

Habit: Herb **Habitat:** Planted

Phenology: Flowering & fruiting from Aug.-Oct. **Parts used:** stem

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'08.4"N 78°33'45.8"E, 546 m, 03/04/2022, CM Manasvi, 126216 (FRLH)

Description: Leaves glaucous, spiny along margins and at apex. Flowers greenish, in terminal panicles.

Uses:

Swimming: The dried flowering stem supports beginner swimmers as it floats on water.

90. ***Gardenia gummifera*** L.f.

Local name: *Chinna bikki* **Family:** Rubiaceae

Habit: Shrub **Habitat:** Scrub jungles & hill slopes

Phenology: Flowering & fruiting from Jan.-Sept. **Parts used:** Fruit**,** bark & leaf

Distribution: Endemic to Peninsular India

All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’77.4’’ N 78°70’22.7’’ E, 549 m, 05/06/2022, CM Manasvi, 126455 (FRLH)

Description: Leaves opposite, obovate-oblong, obtuse at apex. Flowers white, solitary, terminal. Berries oblong.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark & leaves are used to make *Uppu Chakka*.

Food: The fruits are edible.

91. ***Gardenia latifolia*** Aiton

Local name: *Pedda bikki* **Family:** Rubiaceae

Habit: Small Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Apr.-Oct. **Parts used:** Bark & leaf

Distribution: Nellore, Kurnool, Chittoor, Kadapa, Visakhapatnam, and West Godavari districts of Andhra Pradesh (Pullaiah & Ramamurthy, 2001).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°01'55.6"N 78°36'36.0"E, 570 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126282 (FRLH)

Description: Leavesopposite, elliptic or obovate, coriaceous, glabrous. Flowers cymes in terminal; corolla white, strigose outside, hairs at base inside. Berries globose, seed 1.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

92. ***Givotia moluccana*** (L.) Sreem.

Local name: *Thella pollici* **Family:** Euphorbiaceae

Habit: Tree **Habitat:** Dry deciduous forests & plains

Phenology: Flowering & fruiting from Nov.-May **Parts used:** Bark

Distribution: Anantapur, Kadapa and Kurnool districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°04'33.1"N 78°33'29.4"E, 530 m, 05/04/2022, CM Manasvi, 126283 (FRLH)

Description: Branchlets white stellate tomentose. Leaves orbicular, deeply cordate at base, irregularly at margins. Inflorescence panicles, terminal. Corolla pale yellow.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Eye disorder (white deposition in the eye for infants): The bark is soaked in the mother's milk and feed to the infant.

93. ***Gloriosa superba*** L.

Local name: *Gowramma gadda* **Family:** Colchicaceae

Habit: Climber **Habitat:** Scrub jungles & hill slopes

Phenology: Flowering & fruiting from Aug.-Sept. **Parts used:** Root

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10'13.4'' N 78°69'85.7'' E, 560 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126538 (FRLH)

Description: Perennial. Leaves ovate-acuminate at apex. Inflorescence paniculate cymes; pedicle up to 8 cm long. Corolla 5-lobed, and attractive, red, and mottled with yellow. Capsule oblong, 3 angled.

Uses:

Commercial value: The root is sold during Deepavali & Sankranti for 150-200 rupees per kg.

Poison: The root is poisonous when consumed.

94. ***Gmelina asiatica*** L.

Local name: *Chinna adavi gummadi* **Family:** Lamiaceae

Habit: Shrub **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf, bark & fruit

Distribution: Most of the districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'33.1"N 78°33'29.4"E, 570 m, 03/04/2022, CM Manasvi, 126206 (FRLH)

Description: Leaves elliptic, ovate, glaucous beneath. Racemes axillary and terminal. Corolla campanulate, golden yellow.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Dandruff: The fruit juice is applied to the scalp once every three days and washed.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Diabetes: Two leaves of *Gmelina asiatica* and *Azadirachta indica* are imbibed daily in the morning before breakfast.

95. ***Grewia flavescens*** Juss.

Local name: *Narepu* **Family:** Malvaceae

Habit: Climbing shrub **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Jun.-Oct. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’67.7’’N 78°69’6664, 560 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126558 (FRLH)

Description: Leaves alternate, elliptic-ovate, cordate at base, serrulate at margins. Inflorescence cymes, extra axillary; pedicle up to 2 cm long. Petals 5, golden yellow. Drupes 2-lobed, hirsute.

Uses:

Fodder: The leaves goats and cows feed on this.

96. ***Grewia hirsuta*** Vahl

Local name: *Pilidadu Chettu* **Family:** Malvaceae

Habit: Shrub **Habitat:** Grassland

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86'53.2'' N 78°57'18.5'' E, 681 m, 08/06/2022, CM Manasvi, 126490 (FRLH)

Description: Leaves alternate, linear-oblong, acuminate at apex, densely villous beneath. Inflorescence axillary, umbellate cymose; pedicle up to 1.5 cm long, villous. Petals 5, white after orange. Drupes 4-lobed, fleshy.

Uses:

Fodder: The leaves are fed to goats.

Uppu chakka (cleanses palate, improves digestion, and increases milk production in cattle): The whole plant is used to make *Uppu Chakka*.

97. ***Grewia tiliifolia*** Vahl

Local name: *Ouduga* **Family:** Cornaceae

Habit: Tree **Habitat:** Scrub forests

Phenology: Flowering & fruiting from Feb.-Jun. **Parts used:** Bark

Distribution: East Godavari, Kurnool and Guntur districts of Andhra Pradesh (Pullaiah & Ramamurthy, 2001).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10'62.2'' N 78°70'00.0'' E, 540 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126570 (FRLH)

Description: Leaves alternate, oblong-obovate acute-acuminate at apex. Flowers white fragrant; pedunculate axillary fascicles. Drupes ovoid, purple when ripe.

Uses:

Insect bite: The bark is soaked in hot water and orally administered.

Skin allergy (many boils): The bark is dried, powered and mixed with goat urine. It is applied to the affected parts.

98. ***Gymnema sylvestre*** (Retz.) R.Br. ex Sm.

Local name: *Podapatri* **Family:** Apocynaceae

Habit: Climber **Habitat:** Scrub jungles & hill slopes

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'03.1"N 78°41'41.5"E, 520 m, 05/06/2022, CM Manasvi, 126275 (FRLH)

Description: whole milky latex. Leaves ovate or elliptic-ovate, acute at apex, minutely pubescent. Inflorescence axillary umbels. Corolla pale yellow. Follicles slender, beaked at apex.

Uses:

Diabetes: The powder of dried young *Gymnema sylvestre* leaves, guava leaves, mango leaves, and *Phyllanthus amarus* are used to make a decoction. An equal proportion of leaves is used. It is ingested once a day.

Retained placenta (after childbirth): The leaves of *Gymnema sylvestre* are plucked. The placenta will be delivered after.

Uppu chakka (cleanses palate, improves digestion, and increases milk production in cattle): The whole plant is used to make *Uppu Chakka*.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Commercial value: The leaves are sold in the market for 25 to 30 rupees per kg.

Additional notes: On chewing, the leaves suppress the sensation of taste.

99. ***Gymnosporia emarginata*** (Willd.) Thwaites

Local name: *Erra negari* **Family:** Celastraceae

Habit: Shrub **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Almost throughout the year **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°03'55.2"N 78°33'46.6"E, 568 m, 06/04/2022, CM Manasvi, 126246 (FRLH)

Description: Leaves alternate, ovate to obovate, crenate-serrate at margins, obtuse at apex. Flowers pale yellow, in axillary cymes. Capsules subglobose, 3-lobed.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

100. ***Habenaria roxburghii*** Nicolson

Local name: *Pandi namatai* **Family:** Orchidaceae

Habit: Terrestrial herb **Habitat:** Rocky terrain

Phenology: Flowering & fruiting from Jul.-Oct. **Parts used:** Tuber

Distribution: Vizianagaram, Kurnool, Nellore, West Godavari, Srikakulam districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'14.5"N 78°42'11.5"E, 570 m, 05/06/2022, CM Manasvi, 126533 (FRLH)

Description: A terrestrial orchid. Two Leaves appressed to the earth, sessile, elliptic. Scape, densely flowered, flowers white.

Uses:

Food: The uncooked tuber is eaten during long stays in the forest as it helps sustain oneself for an entire day without water.

101. ***Hardwickia binata*** Roxb.

Local name: *Narepu* **Family:** Fabaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Aug.-Jan. **Parts used:** Bark

Distribution: Anantapur, Kurnool, Srikakulam, Vishakapatnam, East Godavari and Kadapa districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'37.6"N 78°42'15.7"E, 570 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126547 (FRLH)

Description: Leaflets 2, ovate-trapezoid, aricled at base. Pedicels filiform. Bracts ovate, caducous. Sepals obovate-oblong, glabrous. Pods strap-shaped, veined, glabrous, one seed.

Uses:

Rope: The bark fibre is used to make ropes. It was used to bind fences and tie cattle.

Wood: The wood is used for fences and bullock carts.

Additional notes: The tribe sustainably harvests by only partially stripping the bark of each tree. They also refrain from harvesting from younger trees.

102. ***Hemidesmus indicus*** (L.) R.Br.

Local name: *Sugandra pala* **Family:** Asclepiadaceae

Habit: Climber **Habitat:** Grasslands

Phenology: Flowering & fruiting from Sept.-Feb. **Parts used:** Root

Distribution: Most districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’09.1’’ N 78°69’70.4’’ E, 552 m, 05/06/2022, CM Manasvi, & 126267 (FRLH)

Description: Leaves opposite, highly variable, linear-lanceolate or broadly elliptic, acuminate at apex, glabrous. Flowers yellowish-brown, in subsessile cymes.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The whole plant is used to make *Uppu Chakka*.

Stomach pain & Immunity booster: The boiled root is ground and mixed with sugar and milk or hot water. It is also added to tea.

Hunger inducer: Two tablespoons of powdered dried root and mixed to one cup of hot milk.

103. ***Hemionitis cordata*** Roxb. ex Hook. & Grev.

Local name: *Guvenu akku* **Family:** Pteridaceae

Habit: Herb **Habitat:** Moist deciduous forests

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Leaf

Distribution: Anantapur, Chittoor, Kadapa, East Godavari, Guntur, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Vishakapatnam, Vizianagaram and West Godavari districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'37.6"N 78°42'15.7"E, 06/06/2022, June 5, CM Manasvi, 126573 (FRLH)

Description: Rhizome erect when young, short-creeping when mature, up to 5 mm thick. Leaves base deeply cordate, apex rounded, texture thickly coriaceous.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Sickness in children of 3 to 5 years old (weakness, faint wailing, weight loss): 5 or 6 leaves with a fistful of *Selaginella wightii* are boiled in water and used to bathe the child for one week.

Additional notes: The plant is named after the *Guvenu* disease. The *Guvenu* disease was prominent before. It is not common anymore. It is speculated to be caused due to contact with bats.

104. ***Hibiscus rosa-sinensis*** L.

Local name: *Dasanamu* **Family:** Malvaceae

Habit: Shrub **Habitat:** Planted

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Flowers

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 06/06/2022, CM Manasvi, 126524 (FRLH)

Description: An evergreen shrub. Leaves ovate, serrate at margins, acute at apex, .Flowers solitary,axillary, 1-2 per each node.Petals 5, reddish.

Uses:

Ornamental value: It is planted in home gardens for its showy flowers.

105. ***Holoptelia integrifolia*** (Roxb.) Planch.

Local name: *Tabissi* **Family:** Ulmaceae

Habit: Tree **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Sept.-Feb. **Parts used:** Stem bark Fibre

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, CM Manasvi, 126232 (FRLH)

Description: Bark grey. Leaves alternate, ovate-elliptic, glabrous. Flowers in fascicles at the scars of the old shoots, bracts scaly, polygamous or hermaphroditeFruits samara, wings membranous.

Uses:

Wood: The wood is used for furniture. The wood pulp is used to make paper.

Roof: The fibre is used to thatch roofs.

106. ***Huberantha cerasoides*** (Roxb.) Chaowasku

Local name: *Gutthi* **Family:** Annonaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jan.-Oct. **Parts used:** Fruit

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°03'36.3"N 78°38'35.1"E, 530 m, 04/06/2022, CM Manasvi, 126228 (FRLH)

Description: Branchlets pubescent. Leaves alternate, distichous, , elliptic, acuminate at apex. Flowers solitary, axillary

Uses:

Food: The sweet fruit is edible.

107. ***Hugonia mystax*** L.

Local name: *Kaki beera* **Family:** Linaceae

Habit: Climbing shrub **Habitat:** Dry scrub forests

Phenology: Flowering & fruiting from Jan.-Sept. **Parts used:** Root bark & leaf

Distribution: Vijayanagar, Krishna, Adilabad, Kadapa, Chittoor, Prakasam, Nellore districts and Srikakulam districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10'46.1'' N 78°69'97.0'' E, 560 m, 05/06/2022, CM Manasvi, 126297 (FRLH)

Description: Leaves crowded at each stem; leaflets elliptic, obovate, coriaceous, glabrous. Flowers large, yellow in terminal or axillary cymes, lower peduncles spirally hooked.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The root bark is used in *Uppu Chakka*.

Fodder: The leaves are eaten by goats.

108. ***Indigofera aspalathoides*** Vahl ex DC.

Local name: - **Family:** Fabaceae

Habit: Under shrub **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Nov.-Mar. **Parts used:** Leaf

Distribution: Visakhapatnam, Nellore and Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°11'29.6'' N 78°69'86.9'' E, 572 m, 05/06/2022, CM Manasvi, 126469 (FRLH)

Description: Branches terete, silvery pubescent, pink to purplish, Leaves 3-5 foliolate; leaflets linear-oblong. Flowers purple to brick red, solitary, and axillary.

Uses:

Skin rashes: The leaf paste is applied to the affected parts.

109. ***Ipomoea obscura*** (L.) Ker Gawl.

Local name: *Mukkari akku* **Family:** Convolvulaceae

Habit: Climber **Habitat:** Hedges

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 13°04'10.0"N 78°33'42.5"E, 660 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126526 (FRLH)

Description: Stem glabrescent. Leaves cordate, acuminate at apex, glabrous. Flowers solitary, axillary, 1-2 per each node; pedicle up to 2 cm long, glabrous; bracts small, ovate. Corolla funnel-form, pale white.

Uses:

Wounds in armpits & buttocks: The leaves are ground with pepper & garlic and applied on the affected areas.

110. ***Jasminum angustifolium*** (L.) Willd.

Local name: *Adavi malli* **Family:** Oleaceae

Habit: Climber **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Mar.-May **Parts used:** Flower & leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’16.0’’ N 78°69’86.7’’ E, 546 m, 05/06/2022, CM Manasvi, 126288 (FRLH)

Description: Leaves opposite, ovate, glabrescent. Flowers white, in terminal cyme. Corolla lobes 5-7, imbricate. Berries globose with persistent calyx.

Uses:

Ornamental value: The flowers are used to decorate shrines and are worn by women.

Fodder: The leaves are fed to goats.

111. ***Jasminum auriculatum*** Vahl

Local name: *Adavi malli chinna* **Family:** Oleaceae

Habit: Climber **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Jul.-Dec. **Parts used:** -

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°11’29.6’’ N 78°69’86.9’’ E, 572 m, 05/06/2022, CM Manasvi, 126292 (FRLH)

Description: Leaves 3-foliolate, densely pubescent; leaflets lateral leaf small, ovate; central leaf ovate, mucronate at apex, Inflorescence paniculate cymes. Calyx 5-lobed, shorter then corolla tube. Corolla 5 lobed; lobe linear, acute at apex.

Uses:

Ornamental value: It is planted in home gardens.

112. ***Jatropha curcas*** L.

Local name: *Adavi amudam* **Family:** Euphorbiaceae

Habit: Shrub **Habitat:** Roadside

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Latex

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86'54.9'' N 78°57'24.7'' E, 655 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126568 (FRLH)

Description: Leaves alternate, broadly cordate, 3-5 lobed, cordate at base, acute-acuminate at apex, glabrous. Flowers green, in branched dichasial cymes. Capsules green, sub-globose; seeds black, carunculate.

Uses:

Skin burns: The latex is applied to the affected area.

113. ***Jatropha gossypiifolia*** L.

Local name: *Erra chitti amudham* **Family:** Euphorbiaceae

Habit: Shrub **Habitat:** Roadside, wastelands

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Fruit

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'09.1"N 78°33'46.0"E, 528 m, 03/04/2022, CM Manasvi, 126213 (FRLH)

Description: Stem reddish when young, sparsely glandular hairy. Leaves alternate, 3-5 lobed, cordate at base, dilate along margins with glandular hairy, flowers reddish-yellow, in terminal dichasial cymes.

Uses:

Poison: The fruits are poisonous.

114. ***Justicia adhatoda*** L.

Local name: *Adathoda* **Family:** Acanthaceae

Habit: Shrub **Habitat:** Hedges

Phenology: Flowering & fruiting from Oct.-Jan. **Parts used:** -

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'10.0"N 78°33'42.5"E, 547 m, 06/04/2022, CM Manasvi, 126235 (FRLH)

Description: Branches with sparsely lenticels. Leaves opposite, decussate, elliptic-lanceolate, entire at margins, acuminate at apex, glabrous. Inflorescence spekes, axillary and terminal. Coroalla 2-lobed, white.

Uses:

Ornamental value: It is planted in home gardens.

115. ***Justicia tranquebariensis*** L.f.

Family: Acanthaceae **Habit:** Herb

Habitat: Dry deciduous forest **Phenology:** Flowering & fruiting from Jun.-Jan.

Parts used: Whole plant

Distribution: Chittoor, Kadapa and Vishakhapatnam districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°07’01.4’’ N 78°56’11.2’’ E, 558 m, 06/06/2022, CM Manasvi, 126466 (FRLH)

Description: Branches glaucous. Leaves opposite, obovate, appressed pubescent. Spikes terminal or axillary; bracts ovate-sub-orbicular, obtuse at apex. Corolla 2-lobed, white with pink spots.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The whole plant is used to cure ethnoveterinary ailments.

116. ***Kalanchoe pinnata*** (Lam.) Pers.

Local name: *Rana palu chettu* **Family:** Crassulaceae

Habit: Herb **Habitat:** Gardens

Phenology: Flowering & fruiting from Jan.-Mar. **Parts used:** Leaf

Distribution: Guntur and East Godavari districts of Andhra Pradesh (Pullaiah & Ramamurthy, 2001).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°04'06.6"N 78°33'44.2"E, 549 m, 05/06/2022, CM Manasvi, 126219 (FRLH)

Description: Stem reddish when young. Leaves 3-5-foliolate; leaflets oblong or ovate-elliptic, obtuse at apex. Inflorescence panicles, terminal, up to 17 cm long.

Uses:

Eye sore (dry, mild burning): A few leaves are ground into a paste and the juice is extracted. Use one drop in the eye.

117. ***Kleinia grandiflora*** (Wall. ex DC.) N.Rani

Local name: *Koka naleka* **Family:** Asteraceae

Habit: Undershrub **Habitat:** Dry decidious forest

Phenology: Flowering & fruiting from Feb.-Jul. **Parts used:** Leaf & root bark

Distribution: Annamayya, Anantapur, Chittoor, Kadapa, Kurnool, Nandyal, Sri Sathya Sai, and Tirupati districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'14.6"N 78°42'09.5"E, 554 m, 05/06/2022, CM Manasvi, 126291 (FRLH)

Description: Stem shiny and glabrous. Leaves fleshy, spathulate, entire at margins. Heads in terminal corymbs, florets yellow to green.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The leaves are used in Uppu Chakka. It stimulates hunger.

***Janni* fever i.e., postpartum infections** (high fever, headache, arm & legs pain, eye pain, vomiting): An equal amount of root bark from *Capparis sepiaria*, *Bauhinia racemosa*, *Kleinia grandiflora*, *Pongamia pinnata, Benkara malabarica, Zanthoxylum asiaticum,* and *Maclura spinosa* is dried and ground into a powder. It is roasted with oil in a *Lissemys punctata* shell. A lemon sized ball is orally administered with honey for 9 days in the morning and evening.

118. ***Lantana camara*** L.

Local name: *Pulikampa* **Family:** Verbenaceae

Habit: Shrub **Habitat:** Roadside

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Stem

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06’40.6’’ N 78°56’39.3’’ E, 520 m, 06/04/2022, CM Manasvi, 126239 (FRLH)

Description: Leaves ovate, subcordate-rotunded at base, crenate-serrate at margins, acuminate at apex, scabrous hairy. Flowers pink or orange in axillary capitate spikes. Drupes globose, black when ripe.

Uses:

Wood: The dried branches are used to fence houses and animal shelters. It is also used to weave baskets.

119. ***Lepisanthes tetraphylla*** (Vahl) Radlk.

Local name: *Mabbu gotti* **Family:** Sapindaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jan.-Apr. **Parts used:** Fruit

Distribution: Nellore, Kurnool, Guntur, Chittoor, Vishakapatnam of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'10.2"N 78°33'41.2"E, 540 m, 06/04/2022, CM Manasvi, 126238 (FRLH)

Description: Leaves paripinnately compound; leaflets oblong-elliptic, entire at margins, acute at apex. Flowers white, in axillary panicles. Drupes trigonous, velvety.

Uses:

Food: The sweet fruit is edible.

120. ***Leptadenia reticulata*** (Retz.) Wight & Arn.

Local name: *Paal theega* **Family:** Apocynaceae

Habit: Climber **Habitat:** Hedges, wasteplaces

Phenology: Flowering & fruiting from Jul.-Dec. **Parts used:** Flower

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86’54.9’’ N 78°57’24.7’’ E, 456 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126564 (FRLH)

Description: Bark deeply fissured. Leaves opposite, elliptic-oblong, base truncate at base, entire at margins, acuminate at apex, semi-succulent, glabrous. Inflorescence axillary, umbels; pedicle up to 1cm long, gkabrous.

Uses:

Food: To boiling milk, a handful of flowers with coriander powder, green chilli paste, a teaspoon of ragi (thickener) and salt is added. It is finished with tempered onion, garlic and green chilli.

121. ***Leucas aspera*** (Willd.) Link

Local name: *Thummi Chettu* **Family:** Lamiaceae

Habit: Herb **Habitat:** Roadsides and waste places

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Latex

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°01'40.6"N 78°36'35.8"E, 563 m, 05/04/2022, CM Manasvi, 126224 (FRLH)

Description: Stem 4-angled, glabresent. Leaves linear-lanceolate, acute-acuminate at apex. Flowers white, in terminal verticals, calyx tube with long bulbous hairy above and glabrous below.

Uses:

Cattle sickness (weak, violent, trembling, fever, cough): The latex from the leaves is used in the eyes of the cow.

122. ***Maclura spinosa*** (Willd.) C.C.Berg

Local name: *Ponga malli* **Family:** Moraceae

Habit: Straggling shrub **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Feb.-Jan. **Parts used:** Root bark

Distribution: Most of the districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°03'54.5"N 78°33'40.6"E, 561 m, 03/04/2022, CM Manasvi, 126257 (FRLH)

Description: Branches with thorns long, straight or recurved, latex milky. Leaves elliptic or obovate. Flowers dioecious, white in axillary pedunculate heads.

Uses:

***Janni* fever i.e., postpartum infections** (high fever, headache, arm & legs pain, eye pain, vomiting): An equal amount of root bark from *Capparis sepiaria*, *Bauhinia racemosa*, *Kleinia grandiflora*, *Pongamia pinnata, Benkara malabarica, Zanthoxylum asiaticum* and *Maclura spinosa* is dried and ground into a powder. It is roasted with oil in a *Lissemys punctata* shell. A lemon sized ball is orally administered with honey for 9 days in the morning and evening.

Low milk yield in cattle: A handful of leaves with *Kasturi* turmeric is ground into a paste. It is mixed with 200 ml of coconut water and sprinkled on cattle every Sunday for 3 weeks.

123. ***Madhuca longifolia*** var. ***latifolia*** (Roxb.) A.Chev.

Local name: *Vippa mannu* **Family:** Sapotaceae

Habit: Tree **Habitat:** Scrub jungles & hill slopes

Phenology: Flowering & fruiting from Feb.-Jul. **Parts used:** Seed

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’77.66’’ N 78°70’23.5’’ E, 552 m, 05/06/2022, CM Manasvi, 126456 (FRLH)

Description: Leaves crowded, elliptic-lanceolate, acuminate at apex, glabrous. Flowers pale yellow, in dense clusters. Drupes ovoid-subglobose.

Uses:

Oil: The seed oil is used in cooking and to light lamps. This used to be their main source of oil before. They currently do not use it.

Lumps in the throat: The seed are dried, roasted and chewed to reduce the lumps.

Food: The flowers are used as a vegetable.

Oral infection (bleeding gums and ulcers in the mouth): The bark is soaked, heated in water and this decoction is orally administered.

124. ***Malvastrum coromandelianum*** (L.) Garcke

Family: Malvaceae **Habit:** Herb

Habitat: Roadside wastelands **Phenology:** Flowering & fruiting from Jan.-Dec.

Parts used: Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal, 13°04'10.1"N 78°33'44.8"E, 580 m, 20/04/2022, CM Manasvi, 126210 (FRLH)

Description: Stem with appressed stellate hairy. Leaves ovate, acuminate at apex, glabrescent, 5-nerved at base. Flowers yellow, axillary, solitary or in terminal clusters.

Uses:

Open wound: The leaf decoction is used to clean wounds.

125. ***Manilkara hexandra*** (Roxb.) Dubard

Local name: *Paal maanu* **Family:** Sapotaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jul.-Feb. **Parts used:** Bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’62.9’’ N 78°70’02.1’’ E, 550 m, 05/06/2022, CM Manasvi, 126542 (FRLH)

Description: Leaves crowded, elliptic-obovate to oblong, entire, undulate at margins, obtuse at apex. Flowers white, solitary, or in fascicles.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used in Uppu Chakka.

Wood: The wood is used to make huts.

Additional notes: This species abundantly hosts plant galls. However, the galls do not have medicinal value.

126. ***Martynia annua*** L.

Local name: Puligoru Chettu **Family:** Martyniaceae

Habit: Herb **Habitat:** Hedges, fields, wastelands

Phenology: Flowering & fruiting from Jul.-Dec. **Parts used:** Leaf

Distribution: Most all districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86'54.9'' N 78°57'24.7'' E, 668 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126567 (FRLH)

Description: Branchlets glandular viscid. Leaves alternate, ovate-cordate, deeply cordate at base, ciliate, minutely sinuate at margins, acute at apex. Flowers purple with yellow throat, in axillary cymes.

Uses:

Headache: A handful of leaves are ground and the paste is applied on the forehead.

127. ***Memecylon edule*** Roxb.

Local name: *Ali* **Family:** Melastomataceae

Habit: Small tree **Habitat:** Dry Deciduous forests

Phenology: Flowering & fruiting from Feb.-Aug. **Parts used:** Leaf & wood

Distribution: Kurnool & East Godavari districts of Andhra Pradesh (Pullaiah & Ramamurthy, 2001).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10'31.6'' N 78°69'98.8'' E, 559 m, 05/06/2022, CM Manasvi, 126549 (FRLH)

Description: Leaves opposite, ovate-elliptic, entire at margins, acute-acuminate at apex, glabrous. Flowers violet in umbellate cyme, bract triangular. Drupes globose, not strongly persistent with calyx, yellow to bluish-black when ripe.

Uses:

Fodder: The leaves are relished by goats.

Wood: The dried branches are used to fence houses and animal shelters.

128. ***Memecylon umbellatum*** Burm.f.

Local name: *Pedda ali mannu* **Family:** Melastomataceae

Habit: Small Tree **Habitat:** Rocks in ravines & slopes

Phenology: Flowering & fruiting from Jul.-Aug. **Parts used:** Fruit

Distribution: Kurnool, Nandyal, Anantapur, Sri Sathya Sai, YSR, Annamayya, Tirupati and Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86'64.7'' N 78°57'20.2'' E, 675 m, 08/06/2022, CM Manasvi, 126460 & 126484 (FRLH)

Description: Leaves opposite, , ovate-elliptic, acute at apex, glabrous. Flowers violet, in umbellate cymes. Berries spherical-sub-ellipsoid, deep purple when ripe.

Uses:

Food: The fruits are edible for humans and animals.

129. ***Mimosa pudica*** L.

Local name: *Modagadami* **Family:** Fabaceae

Habit: Shrub **Habitat:** Scrub jungles & hill slopes

Phenology: Flowering & fruiting from Sept.-Dec. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03'29.7'' N 78°61'05.7'' E, 560 m, 05/04/2022, CM Manasvi, 126574 (FRLH)

Description: Leaves bipinnately compound; pinnae 1-2 pairs; leaflets linear-oblong. Flowers pink, in globose heads. Pods flat, jointed.

Uses:

Weakness in women (after childbearing): Soak leaves in black goat's milk and orally administer one glass for 3 mornings.

Note: Sensitive plant

130. ***Mirabilis jalapa*** L.

Local name: *Drakshi povu* **Family:** Nyctaginaceae

Habit: Herb **Habitat:** Planted & along roadsides

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** -

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126497 (FRLH)

Description: Leaves ovate, subcordate at base, acuminate at apex. Corolla tubular; tube c. **2.5** cm long, red, pink, yellow or white. Nuts ovoid, hard, c. 5 mm across, rugose.

Uses:

Ornamental value: It is planted in home gardens.

131. ***Mitracarpus hirtus*** (L.) DC.

Local name: *Neer alamu* **Family:** Rubiaceae

Habit: Herb **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Nov.-Apr. **Parts used:** Leaf

Distribution: Guntur, Visakhapatnam and Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06’79.4’’ N 78°56’17.7’’ E, 518 m, 04/06/2022, CM Manasvi, 126270 (FRLH)

Description: Stems 4-gonous. Leaves opposite-decussate, ovate-oblong, acute at apex. Inflorescence verticillate, each axillary. Corolla small, campanulate, c. 2 mm long, white. Capsules small, ovoid, c. 2 mm long.

Uses:

Ulcer (boils in stomach): The dried leaf powered is used.

132. ***Morinda coreia*** Buch.-Ham.

Local name: *Motu manga / Erra vaddi* **Family:** Rubiaceae

Habit: Tree **Habitat:** Forest of high hills

Phenology: Flowering & fruiting from Apr.-Sept. **Parts used:** Root bark & fruit

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13.067487 78.56156, 526 m, 04/06/2022, CM Manasvi, 126271 (FRLH)

Description: Leaves opposite, elliptic-ovate, entire-undulate at margins, abruptly acuminate at apex. Flowers white, in umbellate heads. Syncarpium subglobose, black when ripe.

Uses:

Dye: Colour is extracted from the root bark.

Food: The raw fruits are edible.

133. ***Nicoteba betonica*** (L.) Lindau

Local name: *Soandu* **Family:** Acanthaceae

Habit: Herb **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Oct.-Jan. **Parts used:** Root

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°10’62.2’’ N 78°70’00.0’’ E, 543 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126537 (FRLH)

Description: Leaves opposite, ovate-lanceolate, entire at margins, acuminate at apex. Flowers white, in terminal spikes. Inflorescence spikes, terminal, up to 10 cm long. Corollas 2-lobed, white.

Uses:

Muscle pain: The root is ground with a pinch of salt and the paste massaged in the affected areas.

134. ***Nyctanthes arbor-tristis*** L.

Local name: *Parijatham* **Family:** Oleaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Flower

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’21.6’’N 78°61’00.4’’ E, 594 m, 05/07/2022, CM Manasvi, 126494 (FRLH)

Description: Young branches, sharply quadrangular, hairy. Leaves opposite, ovate to obovate, coriaceous, rough. Inflorescence panicles; corolla tubular, orange with corolla tube. Flowers yellow or white, pedunculate, capitate heads.

Uses:

Ornamental value: It is planted in home gardens and it offered to the god.

135. ***Ocimum gratissimum*** L.

Local name: *Adavi tulsi* **Family:** Lamiaceae

Habit: Undershrub **Habitat:** Planted in gardens

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Whole plant

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'10.0"N 78°33'42.5"E, 561 m, 06/04/2022, CM Manasvi, 126234 (FRLH)

Description: Leaves ovate to ovate-lanceolate, pubescent. Inflorescence racemes, terminal up to 15 cm long; peduncles densely pubescent. Calyx, campanulate, upper lip longer than the lower, rounded and curved upwards in fruit. Corolla, greenish-white to greenish-yellow.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The whole plant is used to make *Uppu Chakka*.

136. ***Ocimum tenuiflorum*** L.

Local name: *Manchi tulsi* **Family:** Lamiaceae

Habit: Undershrub **Habitat:** Sandy areas

Phenology: Flowering & fruiting from Dec.-Mar. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°01'40.6"N 78°36'35.8"E, 560 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126528 (FRLH)

Description: Leaves simple, elliptic oblong, serrate. Flowers white, purplish within, in verticels.

Uses:

Joint pain (due to old age): The leaf juice is mixed with little camphor. One spoonful is orally administered twice a day for 5 days.

137. ***Opuntia dillenii*** (Ker Gawl.) Haw.

Local name: *Naga dali* **Family:** Cactaceae

Habit: Shrub **Habitat:** Roadside & neglected land

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Fruit

Distribution: All the district of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06’78.9’’ N 78°56’18.5’’ E, 528 m, 04/06/2022, CM Manasvi

Description: Stem and branches jointed, areoles raised, densely woolly, flattened yellow spines. Leaves scaly, deciduous. Flowers yellow, solitary. Berries obovoid, purplish; seed numerous.

Uses:

Reduce body heat: The fruits are consumed raw during summer to overcome heat.

138. ***Ottelia alismoides*** (L.) Pers.

Local name: *Sanna tamari* **Family:** Hydrocharitaceae

Habit: Herb **Habitat:** Streams & ponds

Phenology: Flowering & fruiting from May-Nov. **Parts used:** Flower

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’62.2’’ N 78°70’00.0’’ E, 534 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126527 (FRLH)

Description: Submerged herb. Leaves oblong, truncate at base. Flowers white with yellow spot, unisexual and bisexual, spathe greenish.

Uses:

Worship: The flowers are offered to God.

139. ***Passiflora foetida*** L.

Local name: Sweet fruit **Family:** Passifloraceae

Habit: Climber **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jun.-Dec. **Parts used:** Fruit

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'05.5"N 78°33'43.8"E, 515 m, 07/04/2022, CM Manasvi, 126251 (FRLH)

Description: Branches faintly angular. Tendrils axillary. Leaves alternate, palmately 3-lobed, rounded at base. Flowers white, solitary. Berries globose, orange.

Uses:

Food: The fruits are edible.

140. ***Pavetta indica*** L.

Local name: *Papidi* **Family:** Rubiaceae

Habit: Shrub **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from May-Nov. **Parts used:** Fruit

Distribution: Anantapur, Chittoor, Kadapa, East Godavari, Guntur, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Vishakapatnam, Vizianagaram, West Godavari districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°07’04.51’’ N 78°56’08.2’’ E, 544 m, 06/06/2022, CM Manasvi, 126473 (FRLH)

Description: Leaves chartaceous, elliptic-obovate; stipules connate. Flowers white, terminal or axillary cyme. Berry fleshy, globose.

Uses:

Food: The fruits are edible.

141. ***Pergularia daemia*** (Forssk.) Chiov.

Local name: *Jittu vakku* **Family:** Apocynaceae

Habit: Climber **Habitat:** Scrub jungles & hill slopes

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°01'40.0"N 78°36'35.5"E, 570 m, 07/04/2022, CM Manasvi, 126478 (FRLH)

Description: Leaves alternate, cordate, entire at margins, acuminate at apex, pubescent. Flowers pale yellowish-green, in corymbose pedunculate cymes.

Uses:

Cold (excess saliva produced): The leaves are cleaned, ground and mixed with milk & *sunnam* (lime stone powder). It is applied on the throat.

142. ***Phyllanthus amarus*** Schumach. & Thonn.

Local name: *Kernalli* **Family:** Phyllanthaceae

Habit: Herb **Habitat:** Scrub jungles & hill slopes

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: Mudaramdoddi, 12°97’26.7’’ N 78°57’66.6’’ E, 560 m, 07/06/2022, CM Manasvi, 126467 (FRLH)

Description: Leaflets oblong, truncate at base, entire, obtuse at apex. Flowers green, in axillary fascicles. Capsules globose, glabrous.

Uses:

Diabetes: The powder of dried young *Gymnema sylvestre* leaves, Guava leaves, Mango leaves, and *Phyllanthus amarus* are used to make a decoction. An equal proportion of leaves is used. It is ingested once a day.

Skin allergy: The leaves are dried and ground. It is applied to the affected areas with cow urine.

143. ***Phyllanthus polyphyllus*** Willd.

Local name: *Pandi barasu mannu* **Family:** Phyllanthaceae

Habit: Shrub **Habitat:** Along riverbeds

Phenology: Flowering & fruiting from Jul.-Mar. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°02'55.4"N 78°37'01.4"E, 591 m, 05/06/2022, CM Manasvi, 126233 (FRLH)

Description: Leaves oblong or linear, base rounded. Flowers axillary. Female flowers with smooth ovary. Capsule globose.

Uses:

Fodder: As the tree never sheds, the goats are fed its leaves during the summer season. It is believed to keep them healthy.

144. ***Phyllanthus virgatus*** G.Forst.

Family: Phyllanthaceae **Habit:** Herb

Habitat: Slopes & grasslands **Phenology:** Flowering & fruiting from Aug.-May

Parts used: Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’62.2’’ N 78°70’00.0’’ E, 540 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126535 (FRLH)

Description: Branchlets winged. Leaflets linear-oblong, entire at margins, subsessile, stipules sagittate-peltate. Capsule, globose; seeds ovoid, trigonous.

Uses:

Inflamed eyes: The leaf juice is used to wash the eyes.

145. ***Physalis angulata*** L.

Local name: *Budama* **Family:** Solanaceae

Habit: Herb **Habitat:** Wastelands

Phenology: Flowering & fruiting from Jul.-Jan. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126502 (FRLH)

Description: Leaves ovate, base obtuse, margin entire. Flowers yellow, solitary, axillary. Berry globose, inflated calyx, seeds many.

Uses:

Food: The leaves are used to make curry and sambhar.

146. ***Plumbago zeylanica*** L.

Family: Plumbaginaceae **Habit:** Shrub

Habitat: Wasteland, hedges **Phenology:** Flowering & fruiting from Sept.-Dec.

Parts used: Root

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'36.6"N 78°33'03.6"E, 514 m, 07/04/2022, CM Manasvi, 126258 (FRLH)

Description: Stem 4-angled, striate, glabrous. Leaves ovate, acute-acuminate at apex. Flowers in terminal elongate spikes; corolla tubular; tube c. 2.5 cm long, glabrous. Capsules globose; seed solitary.

Uses:

Skin rashes: An inch of the root ground into a paste and applied once on the affected area.

147. ***Polygala arvensis*** Willd.

Family: Polygalaceae **Habit:** Herb

Habitat: Dry deciduous forests **Phenology:** Flowering & fruiting from Jan.-Dec.

Parts used: Leaf

Distribution: Anantapur, Chittoor, Kadapa, East Godavari, Guntur, Krishna, Kurnool, Nellore, Prakasam, Srikakulam, Vishakapatnam, Vizianagaram, and West Godavari districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’62.2’’ N 78°70’00.0’’ E, 555 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126525 (FRLH)

Description: Leaves oblong, retuse at apex, emarginated emarginate at apex. Flowers yellow, solitary or lateral cymes. Capsules ovate-oblongseeds pilose.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

148. ***Pongamia pinnata*** (L.) Pierre

Local name: *Kanuga* **Family:** Fabaceae

Habit: Tree **Habitat:** Deciduous forests

Phenology: Flowering & fruiting from Apr.-Dec. **Parts used:** Root bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°02'88.0'' N 78°61'11.8'' E, 560 m, 05/04/2022, CM Manasvi, 126472 (FRLH)

Description: Leaves imparipinnate; leaflets 5-7, ovate, entire at margins, acuminate at apex, glabrous. Flowers pale pink, in axillary racemes.

Uses:

***Janni* fever i.e., postpartum infections** (high fever, headache, arm & legs pain, eye pain, vomiting): An equal amount of root bark from *Capparis sepiaria*, *Bauhinia racemosa*, *Kleinia grandiflora*, *Pongamia pinnata, Benkara malabarica, Zanthoxylum asiaticum* and *Maclura spinosa* is dried and ground into a powder. It is roasted with oil in a *Lissemys punctata* shell. A lemon sized ball is orally administered with honey for 9 days in the morning and evening.

To prevent miscarriage: One inch of the bark is washed, ground and slowly heated in castor oil. In the first trimester, the pregnant women should lick the oil once for 9 days in the morning and evening.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Advice on Diet: It should be administered on an empty stomach. Only salt, rice and chillies should be consumed. Rasam, onion, garlic, tamarind should not be consumed.

149. ***Premna tomentosa*** Willd.

Local name: *Naarava* **Family:** Lamiaceae

Habit: Tree **Habitat:** Hill slopes

Phenology: Flowering & fruiting from Feb.-Aug. **Parts used:** Leaf & root

Distribution: Kurnool, Prakasam, Kadapa, Vishakapatnam, Chittoor, Anantapur, Srikakulam and West Godavari districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'26.8"N 78°33'32.4"E, 568 m, 02/04/2022, CM Manasvi, 126204 (FRLH)

Description: Young branches stellate-tomentose. Leaves alternate, ovate, obtuse or cordate at base, acuminate at apex. Flowers greenish yellow, in terminal or axillary panicles.

Uses:

Allergy: The leaves are boiled in water and it is used to bathe for three continuous days.

Stomach ache: The decoction of the roots is orally administered.

150. ***Psydrax dicoccos*** Gaertn.

Local name: *Nalla bolusu* **Family:** Rubiaceae

Habit: Tree **Habitat:** Tropical dry evergreen forests

Phenology: Flowering & fruiting from Dec.-May **Parts used:** Wood & leaf

Distribution: Chittoor district, Vishakapatnam district, Kurnool district and East Godavari district of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06’80.6’’ N 78°56’17.2’’ E, 514 m, 07/04/2022, CM Manasvi, 126554 (FRLH)

Description: Leaves elliptic-ovate, coriaceous. Inflorescence axillary, dichasial umbesl; peduncle 2-3.5 cm long. Flowerswhite, scandens Drupes globose, blackish when ripe.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Wood: Wood is used in house construction and shed roof.

Additional notes: The plant is classified as 'Vulnerable' in the IUCN Red List of Threatened Species (2013)

151. ***Pterocarpus marsupium*** Roxb.

Local name: *Natheregi mannu* **Family:** Fabaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Mar.-Feb. **Parts used:** Gum & bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'08.0"N 78°42'20.3"E, 560 m, 05/06/2022, CM Manasvi, 126575 (FRLH)

Description: Leaves imparipinnate; leaflets 5-7 pairs, elliptic-oblong, emarginate at apex. Pods orbicular, winged.

Uses:

Muscle pull / Joint pain: 1 tablespoon of gum is applied to the injured area 3 times to relieve the pain.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Boils on cattle's skin (due to excessive ploughing): The bark of *Pterocarpus marsupium*, *Bauhinia purpurea* and *Ficus sp.* are boiled, ground and applied on the affected parts with red soil for 3 days.

Wood: The wood is used to make furniture such as bed legs.

Additional notes: The plant is classified as 'Near Threatened' in the IUCN Red List of Threatened Species. It produces a red exudate when the branches are cut.

152. ***Pterolobium hexapetalum*** (Roth) Santapau & Wagh

Local name: *Erra cheeki* **Family:** Fabaceae

Habit: Straggling shrub **Habitat:** Scrub forest

Phenology: Flowering & fruiting from Jul.-Dec. **Parts used:** Bark

Distribution: Kurnool, Kadapa, Anantapur, Chittoor, Krishna, Srikakulam and West Godavari district of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06'89.2'' N 78°56'24.5'' E, 548 m, 04/06/2022, CM Manasvi, 126262 (FRLH)

Description: Thorns woody recurved. Leaves bipinnate; leaflets 8-12 pairs, oblong. Flowers white, in axillary or terminal racemes.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Honey collection: It attracts honey bees with its fragrant smell and produces the sweetest honey. This is collected by the Yanadi tribe.

153. ***Ruellia prostrata*** Poir.

Local name: *Budakakkara* **Family:** Acanthaceae

Habit: Herb **Habitat:** Degraded forests & plains

Phenology: Flowering & fruiting from Jun.-Feb. **Parts used:** Leaf

Distribution: Kadapa, West Godavari, Kadapa, Krishna, Kurnool, East Godavari, and Srikakulam districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’09.3’ N 78°69’70.0’ E, 563 m, 05/06/2022, CM Manasvi, 126280 (FRLH)

Description: Leave, ovate, acute at apex, sparsely hairy. Flower axillary, solitary, subsessile; bracts foliaceous. Corolla lilac, externally hairy, segmented into 5 semi-orbicular lobes.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The whole plant is used to make *Uppu Chakka*.

154. ***Sapindus emarginatus*** Vahl

Local name: *Koogatti* **Family:** Sapindaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Oct.-Feb. **Parts used:** Fruit

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°02'11.0"N 78°36'37.2"E, 591 m, 05/04/2022, CM Manasvi, 126230 (FRLH)

Description: Leaves paripinnate; leaflets 4, oblong, entire, emarginate at apex. Drupes 3-lobed, ovoid; green.

Uses:

Shampoo: The dried fruits of *Albizia amara*, *Catunaregam spinosa* & *Sapindus emarginatus* are ground in 1:1:1 proportion. The powder is used to cleanse hair.

155. ***Scutia myrtina*** (Burm.f.) Kurz

Local name: *Goratti* **Family:** Rhamnaceae

Habit: Climbing Shrub **Habitat:** Tropical Dry evergreen forests

Phenology: Flowering & fruiting from Jun. -Sept. **Parts used:** Leaf & fruit

Distribution: Kadapa, Nellore, Chittoor, Vijayanagaram and Visakhapatnam districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06'10.6"N 78°41'55.1"E, 529 m, 04/06/2022, CM Manasvi, 126272 (FRLH)

Description: Armed with recurved spines. Leaves obovate-orbicular, coriaceous, opposite, glossy above. Flowers green in umbellate, axillary clusters. Fruits obovoid, dark blue when ripe.

Uses:

Cattle feed: The leaves are dried, powdered and feed to the cattle.

Food: The young leaves are used to make sambhar.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The leaves are used to make *Uppu Chakka*.

Commercial value: The fruits are sold.

156. ***Secamone emetica*** (Retz.) R.Br. ex Schult.

Local name: *Chitti paal theega* **Family:** Apocynaceae

Habit: Climber **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Jul.-Mar. **Parts used:** Leaf

Distribution: Nellore, Kadapa & Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86'55.2'' N 78°57'23.0'' E, 675 m, 08/06/2022, CM Manasvi, 126489 (FRLH)

Description: Leaves opposite-decussate, linear-lanceolate. Flowers yellow, in axillary dichasial branched cymes. Corolla campanulate, corona single, beaked. Seeds oblong, dull white and silky.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

157. ***Selaginella wightii*** Hieron.

Local name: *Gugora akku* **Family:** Selaginellaceae

Habit: Herb **Habitat:** Moist and Shady areas

Parts used: Whole plant

Distribution: Kadapa & Chittoor districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10'62.2'' N 78°70'00.0'' E, 566 m, 05/04/2022, CM Manasvi

Description: Xerophytic, Stem creeping copiously branched. Rhizophores wiry, throughout the plant. Leaves isomorphic, herbaceous green. Strobili borne on ultimate branches, very slightly distinct from sterile branches.

Uses:

Sickness in children of 3 to 5 years old (weakness, faint wailing, lose weight): A fistful of *Selaginella wightii* with 5 or 6 leaves of *Hemionitis cordata* is boiled in water and used to bathe the child for a week.

Additional notes: After the rain, the plant becomes green. It dries in three days without moisture.

158. ***Senegalia caesia*** (L.) Maslin, Seigler & Ebinger

Local name: *Gabbu seege* **Family:**Fabaceae

Habit: Liana **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Aug.-Jun. **Parts used:**

Distribution: Visakhapatnam, Kadapa and Chittoor districts of Andhra Pradesh (Pullaiah & Ramamurthy, 2001).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°01'43.7"N 78°36'40.3"E, 560 m, 05/04/2022, CM Manasvi, 126222 (FRLH)

Description: Branch prickly, sparingly grooved, puberulous when young. Leaves alternate, bipinnate, glabrous.

Uses:

159. ***Senegalia chundra*** (Roxb. ex Rottler) Maslin

Local name: *Sundra mannu* **Family:** Fabaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from May-Oct. **Parts used:** Wood

Distribution: West Godavari, Kurnool, Srikakulam, Anantapur, Kadapa and Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'14.0"N 78°42'08.1"E, 560 m, 06/05/2022, 126576 (FRLH)

Description: Branches armed. Leaves bipinnate; leaflets oblong. Flowers yellowish white, in spikes. Pods flat, brown, glabrous, compressed.

Uses:

Wood: The wood is used for furniture.

160. ***Senegalia pennata*** (L.) Maslin

Local name: *Peda meeraka chikki* **Family:** Fabaceae

Habit: Shrub **Habitat:** Ravine & stream banks

Phenology: Flowering & fruiting from Aug.-Apr. **Parts used:** Leaf

Distribution: East Godavari, Srikakulam, Kurnool and Visakhapatnam districts of Andhra Pradesh (Pullaiah & Ramamurthy, 2001).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°89'07.1'' N 78°57'27.8'' E, 677m, 08/06/2022, CM Manasvi, 126491 (FRLH)

Description: Bark reddish-brown. Leaves alternate, pinnate, elliptic, rachis with glands opposite to 2 uppermost pairs of pinnate. Flowers pale yellow, in heads in terminal or axillary racemes.

Uses:

Food: The leaves are used in curries.

Fodder: The leaves are fed to goats.

161. ***Senna auriculata*** (L.) Roxb.

Local name: *Thangedu* **Family:** Fabaceae

Habit: Shrub **Habitat:** Open forests

Phenology: Flowering & fruiting from Jul.-Mar. **Parts used:** Leaf, fruit & bark

Distribution: East Godavari, Srikakulam, Kadapa, Kurnool, and Prakasam districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'21.3"N 78°32'36.8"E, 567 m, 02/04/2022, CM Manasvi, 126201 (FRLH)

Description: Leaf even-pinnate, leaflets 5 – 13 pairs, glands between all pairs of leaflets. Flower yellow, in terminal panicles, bracts ovate-lanceolate.

Uses:

Blisters on feet (due to walking barefoot in the rain): The fruit is crushed and applied to the affected parts.

Heat Exhaustion (Diarrhoea): The tender leaves are consumed.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Loss of appetite in domesticated animals: The leaves of *Cissus quadrangularis*, *Senna auriculata,* and *Azadirachta indica* is mixed with boiled rice. Every Sunday for three to four months, the domesticated animals are fed this blend.

162. ***Senna montana*** (B.Heyne ex Roth) V.Singh

Family: Fabaceae **Habit:** Shrub

Habitat: Dry deciduous forest **Phenology:** Flowering & fruiting from Jan.-Dec.

Parts used: Leaf

Distribution: Kurnool, Chittoor, Kadapa, Anantapur districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’62.2’’ N 78°70’00.0’’ E, 570 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126551 (FRLH)

Description: Leaflets 10-12 pairs, oblong-elliptic. Pod straight, flat.

Uses:

Fertilizer: The dried leaf is burned, and the ash is applied to the soil along with fresh leaf to promote crop growth.

163. ***Solanum nigrum*** L.

Local name: *Kamanchi* **Family:** Solanaceae

Habit: Undershrub **Habitat:** Planted & along roadsides

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Fruit

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126498 (FRLH)

Description: Leaves simple, ovate-lanceoate, shallowly lobed, acute or acuminate at apex. Flowers white, in extra axillary sub-umbellate cymes. Berries globose.

Uses:

Food: The fruit is used to make curries and chutney.

164. ***Solanum torvum*** Sw.

Local name: *Upichilli* **Family:** Solanaceae

Habit: Shrub **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Sept.-Jan. **Parts used:** Fruit

Distribution: Visakhapatnam, Srikakulam, Hyderabad and West Godavari districts of Andhra Pradesh.

Specimens examined: Mudaramdoddi, 13°06’71.9’’ N 78°53’74.5’’ E, 599 m, 06/07/2022, CM Manasvi, 126480 (FRLH)

Description: Stem pubescent. Leaves ovate, shallowly lobed with spines. Flowers white, dense cymes.

Uses:

Food: The fruit is cooked in curries and eaten.

165. ***Sterculia urens*** Roxb.

Local name: *Tapasi / Erra pollici* **Family:** Malvaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Oct.-Apr. **Parts used:** Wood & bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°01'55.6"N 78°36'36.0"E, 568 m, 05/04/2022, CM Manasvi, 126220 (FRLH)

Description: Bark white, smooth. Leaves alternate, palmately lobed, velvety beneath. Flowers greenish-yellow, in terminal panicles. Follicles oblong, covered with yellowish-brown, irritant bristles**.**

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Wood: The wood is used for making house articles.

166. ***Streblus asper*** Lour.

Local name: *Kappa chettu* **Family:** Moraceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jan.-Jul. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°02'11.0"N 78°36'37.2"E, 526 m, 05/04/2022, CM Manasvi, 126231 (FRLH)

Description: Leaves simple, ovate or obovate, obtuse to cuneate at base, serrate at margins, acute at apex. Flowers white, in axillary cymes.

Uses:

Eye infection: The leaf juice is poured into the infected eye.

167. ***Strychnos nux-vomica*** L.

Local name: *Mushti mannu* **Family:** Loganiaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Mar.-May **Parts used:** Seed

Distribution: Srikakulam, Vishakapatnam, Vizianagaram, East Godavari, West Godavari, Krishna, Guntur, Prakasam, Kurnool, Nellore, Kadapa, Anantapur and Chittoor districts of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°01'49.3"N 78°36'38.8"E, 545 m, 03/04/2022, CM Manasvi, 126221 (FRLH)

Description: Leaves elliptic–orbicular; short, axillary spines. Flowers greenish white, fragrant, in terminal compound cymes.Berries globose, thick shelled, orange when ripe, slightly rough but shining, seeds many.

Uses:

Commercial Value: The seed is sold by Kg.

168. ***Strychnos potatorum*** L.f.

Local name: *Chilla* **Family:** Loganiaceae

Habit: Tree **Habitat:** Dry deciduous forest

Phenology: Flowering & fruiting from Apr. -Nov. **Parts used:** Seed

Distribution: Most of the districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’29.9’’ N 78°69’97.0’’ E, 557 m, 05/06/2022, CM Manasvi, 126294 (FRLH)

Description: Leaves alternate, ovate, truncate at base, acute at apex. Flowers white, in axillary cymes. Berries ovoid, bluish-black when ripe, glabrous.

Uses:

Scorpion bite: The seed paste is applied on the affected part.

Ear ache: The seeds are heated in hot water and a few drops are instilled into the ear.

Insect bite: The seed is powdered and applied on the affected part.

Eye infection (watering): The seeds are ground, mixed with honey and applied on the eyes.

Urine retention: The seeds are ground and orally administered with little tender coconut water once.

169. ***Synostemon bacciformis*** (L.) G.L.Webster

Local name: *Peda goti chettu* **Family:** Phyllanthaceae

Habit: Herb **Habitat:** Moist localities

Phenology: Flowering & fruiting from Jun.-Feb. **Parts used:** Leaf

Distribution: Nellore district and Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°06'10.6"N 78°41'55.1"E, 528 m, 05/06/2022, CM Manasvi, 126290 (FRLH)

Description: Straggling angled branches. Leaves alternate, elliptic, obovate. Inflorescences axillary, flowers in clusters, green to light purple. Seeds white.

Uses:

Cattle feed: The leaves are dried and powdered & feed to the cattle.

170. ***Tamarindus indica*** L.

Local name: *Chinta mannu* **Family:** Fabaceae

Habit: Tree **Habitat:** Planted

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Fruit, bark & leaf

Distribution: All of the districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06’84.9’’N 78°56’22.8’’ E, 78 m, 03/04/2022, CM Manasvi, 126260 (FRLH)

Description: Leaves paripinnate; leaflets narrowly oblong, obtuse at base and apex, glabrous. Flowers pale yellow, in lax racemes.

Uses:

Fruit: The fruit pulp is used in Sambhar and Rasam. The flowers are used make curries.

Ankle sprain: The boiled leaves are wrapped around the affected part with a cloth.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

171. ***Drypetes sepiaria*** (Wight & Arn.) Pax & Hoffman

Local name: *Bira* **Family:** Putranjivaceae

Habit: Tree **Habitat:** Dry evergreen & semi-evergreen forests

Phenology: Flowering & fruiting from Apr.-Mar **Parts used:** Root & wood

Distribution: Kadapa district, Chittoor district, Kurnool district, Vishakhapatnam district and West Godavari district of Andhra Pradesh (Sankara et al., 2005).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°01'47.7"N 78°36'30.8"E, 558 m, 05/04/2022, CM Manasvi, 126225 (FRLH)

Description: Leaves elliptic, coriaceous. Flowers dioecious, green. Male in axillary clusters, stamen 4 to many. Female flowers 1 or 2 together, disc present.

Uses:

Scorpion bite: The root is ground into a paste and orally administered as an antidote.

Wood: The dried branches are used to fence houses and animal shelters.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

172. ***Syzigium cumini*** (L.) Skeels

Local name: *Naeraedi maanu* **Family:** Myrtaceae

Habit: Tree **Habitat:** Along roadssides.

Phenology: Flowering & fruiting from Apr. -Jun. **Parts used:** Fruit

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°06’80.5’’ N 78°56’22.0’’ E, 525 m, 04/06/2022, CM Manasvi, 126265 (FRLH)

Description: Bark ashy-brown, smooth bark. Leaves opposite, decussate, elliptic-oblong, coriaceous, glabrous. Flowers pale greenish white, sessile, axillary or terminal in trichotomous panicles.

Uses:

Food: The fruits are edible.

173. ***Syzygium alternifolium*** (Wight) Walp.

Local name: *Naramamidi* **Family:** Myrtaceae

Habit: Tree **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Dec.-Jun. **Parts used:** Leaf

Distribution: Endemic

Kurnool, Chittoor, Prakasam and Kadapa districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’62.2’’ N 78°70’00.0’’ E, 542 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126577 (FRLH)

Description: Leaves alternate, brodaly ovate-elliptic, coriaceous, entire at margins.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

Additional notes: The plant is classified as 'Near Threatened' in the IUCN Red List of Threatened Species.

174. ***Taprobanea spathulata*** (L.) Christenson

Family: Orchidaceae **Habit:** Epiphytic Herb

Habitat: Dry deciduous forest **Phenology:** Flowering & fruiting from Mar.-Sept.

Parts used: Whole plant

Distribution: Nellore and Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’62.2’’ N 78°70’00.0’’ E, 565 m, 07/07/2022, CM Manasvi & Arun Kumar N, 126553 (FRLH)

Description: An epiphyte with non-pseudobulbous stem. Root long, vermiform, internodes black-spotted. Leaves fleshy, oblong-lanceolate. Flowers golden yellow, lip 3-lobed, racemes, floral bracts ovate. Capsules fusiform.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The entire plant is used to make *Uppu Chakka*.

175. ***Tarenna asiatica*** (L.) Kuntze ex K.Schum.

Local name: *Kommi chettu* **Family:** Rubiaceae

Habit: Shrub **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Dec.-Apr. **Parts used:** Flower

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'06.9"N 78°33'44.7"E, 534 m, 03/04/2022, CM Manasvi, 126217 (FRLH)

Description: Leaves elliptic ovate. Flowers white in branched corymbose Cymes. Berries orbicular, green; many seeded.

Uses:

Honey: Honeybees make their first honey from these flowers. The honey is harvested by the yanadis’ and sold commercially.

176. ***Tephrosia purpurea*** (L.) Pers.

Local name: *Yempali* **Family:** Fabaceae

Habit: Herb **Habitat:** Wastelands

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Root bark & leaf

Distribution: All the districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'32.2"N 78°33'29.9"E, 572 m, 02/04/2022, CM Manasvi, 126205 (FRLH)

Description: Leaves imparipinnate; leaflets c. *18*, obovate, obtuse-retuse at apex. Flowers pink, in extra-axillary racemes. Pods flat.

Uses:

Mouth or stomach ulcer: The leaf paste is orally administered with milk.

Food poisoning (stomach pain, diarrhoea, weakness): The root bark is consumed raw only once.

Diarrhoea for cattle: A spoonful of leaf juice is orally administered.

Additional notes: Take caution not to use *Bonthe yempali* i.e.*Tephrosia villosa*.

177. ***Tephrosia villosa*** (L.) Pers.

Local name: *Bonthe yempali* **Family:** Fabaceae

Habit: Herb **Habitat:** Roadsides

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Leaf

Distribution: Chittoor district, Guntur district, Anantapur district, Kadapa district, West Godavari district, and Srikakulam district of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 12°58'30.6"N 78°34'44.4"E, 560 m, 06/06/2022, CM Manasvi, 126465 (FRLH)

Description: Leaves imparipinnate; leaflets *c.* 17, obovate, obtuse-retuse at apex. Flowers white-lilac, racemes. Pods woolly tomentose, curved.

Uses:

Fertilizer: The dried leaf is burned, and the ash is applied to the soil along with fresh leaf to promote crop growth.

Additional notes: The tribals can differentiate between *Tephrosia villosa* and *Tephrosia purpurea*.

178. ***Terminalia arjuna*** (Roxb. ex DC.) Wight & Arn.

Local name: *Yerra maddi* **Family:** Combretaceae

Habit: Tree **Habitat:** Open areas and forests

Phenology: Flowering & fruiting from May-Jun. **Parts used:** Wood & leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’59.7’’ N 78°69’91.1’’ E, 547 m, 05/06/2022, CM Manasvi, 126451 (FRLH)

Description: Bark grey, smooth. Leaves simple, oblong or obovate oblanceate, obtuse or subcordate at base, obtuse at apex. Flowers pale yellow, in panicled spikes. Drupes 5-angled, woody.

Uses:

Wood: The wood is used for making house articles and furniture such as doors and windows.

Ear ache: The leaf is crushed and few droplets is poured in the ears.

Additional notes: Due to the drought till 2018, the population of *Terminalia arjuna* decreased in the sandra forest.

179. ***Terminalia chebula*** Retz.

Local name: *Karakkaya* **Family:** Combretaceae

Habit: Tree **Habitat:** Moist deciduous forests

Phenology: Flowering & fruiting from Apr. -Aug. **Parts used:** Fruit & bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°11’22.7’’ N 78°69’94.2’’ E, 567 m, 05/06/2022, CM Manasvi, 126459 (FRLH)

Description: Leaves elliptic-oblong, acute. Flowers in terminal and axillary panicled spikes. Drupes 5-ribbed, seeds solitary.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Commercial value: The fruits are sold to make the famous ayurvedic formulation *Triphala*.

Additional notes: It is believed that when *Terminalia chebula* is flowering, gods and devils reside within it.

180. ***Tinospora cordifolia*** (Willd.) Hook. f. &Thoms.

Local name: *Thippa theega* **Family:** Menispermaceae

Habit: Climber **Habitat:** Deciduous forests & scrub jungles

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Fruit & leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'02.5"N 78°33'40.4"E, 505 m, 07/04/2022, CM Manasvi, 126254 (FRLH)

Description: Branches with lenticillate, whitish, glabrous, leaves alternate, ovate, cordate at base, acuminate at apex. Drupes ovoid, c. 08 mm across, reddish.

Uses:

Diarrhoea: The stem is tied to the leg or hand. A pinch of turmeric and kokum is applied. Pray to the sun and the moon. It is wrapped around a tree after one week.

Urinary retention (unable to pass urine): The leaves are dried and ground into a powder. It is roasted in oil. A lemon sized ball is orally administered with goat milk 4 times.

Snakebite: The leaves are ground and mixed with turmeric. It is applied to the affected part.

Food: The leaves are edible. It is consumed in the form of juice.

181. ***Tithonia diversifolia*** (Hemsl.) A.Gray

Family: Asteraceae **Habit:** Shrub

Habitat: Planted & along roadsides **Phenology:** Flowering & fruiting from Jan.-Dec.

Parts used: Whole plant

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaligutta, 13°03’38.4’’ N 78°61’06.8’’ E, 570 m, 05/06/2022, CM Manasvi, 126501 (FRLH)

Description: Leaves opposite, deeply 3 lobed, pubescent beneath. Flowers in solitary, yellow.

Uses:

Ornamental value: It is planted in home gardens for its flowers.

182. ***Tridax procumbens*** L.

Local name: *Gaddi chemanthi* **Family:** Asteraceae

Habit: Herb **Habitat:** Waste places

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°07’29.0’’ N 78°55’97.6’’ E, 568 m, 06/06/2022, CM Manasvi, 126471 (FRLH)

Description: Leaves simple, lanceate to ovate, acute at base, margin coarsely serrate, acute at apex. Flowers yellow, in terminal heads.

Uses:

Hair growth: The whole plant is crushed and applied on scalp before hair wash.

183. ***Vanilla walkerae*** Lindl. ex Wight

Local name: *Gondu Naleri* **Family:** Orchidaceae

Habit: Climber **Habitat:** Along river banks

Phenology: Flowering & fruiting from Mar.-Apr. **Parts used:** Whole plant

Distribution: East Godavari & Chittoor districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°10’62.3’’ N 78°69’89.4’’ E, 552 m, 05/06/2022, CM Manasvi, 126452 (FRLH)

Description: Leaves ovate or elliptic ovate. Flowers yellow, in axillary umbels. Follicles slender, beaked at the apex.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The whole plant is used in *Uppu Chakka*. It stimulates hunger.

Additional notes: This is a rare species. However, it is abundant in the Sandra & Naniyalu forest along streams.

184. ***Vincetoxicum indicum*** (Burm.f.) Mabb.

Local name: *Megha theega* **Family:** Apocynaceae

Habit: Climber **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Whole plant

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'05.5"N 78°33'44.7"E, 561 m, 04/06/2022, CM Manasvi, 126264 (FRLH)

Description: Leaves cordiform, oblong to lanceolate, sub coriaceous. Flowers pale white, greenish yellow to purple. Cymes lateral, umbellate.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The whole plant is used to make *Uppu Chakka*.

185. ***Viscum orientale*** Willd.

Local name: *Bajaneekka* **Family:** Santalaceae

Habit: Undershrub **Habitat:** Scrub jungles & hill slopes

Phenology: Flowering & fruiting from Feb.-Mar. **Parts used:** Whole plant

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: Mudaramdoddi, 13°00'13.2 N 78°55'39.8' E, 591 m, 05/06/2022, CM Manasvi, 126476 (FRLH)

Description: Drooping branches, internodes terete. Leaves obovate-elliptic or oblong. Flowers unisexual, in triads in axillary clusters, tetramerous. Berry globose.

Uses:

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaf is used to cure ethnoveterinary ailments.

Additional notes: It is observed to grow on *Diospyros melanoxylon*.

186. ***Vitex altissima*** L.f.

Local name: *Nemmiladi Oudaga* **Family:** Lamiaceae

Habit: Tree **Habitat:** Moist deciduous forests

Phenology: Flowering & fruiting from Jun.-Jan. **Parts used:** Fruit

Distribution: Annamayya, Anantapur, Chittoor, Kadapa, Kurnool, Nandyal, Sri Sathya Sai and Tirupati districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Sandra, 13°11'19.3'' N 78°69'80.8'' E, 569 m, 05/06/2022, CM Manasvi, 126462 (FRLH)

Description: Leaves tri-foliolate, leaflets elliptic-lanceolate, pubescent beneath and along nerves above. Flowers pale pink, terminal panicles. Drupes ovoid, black.

Uses:

Commercially sold: It is used as a pepper adulterant. As it has black seeds and a mildly spicy fragrance.

Wood: Wood is used for making house articles or furniture.

187. ***Vitex negundo*** L.

Local name: *Vabilli* **Family:** Lamiaceae

Habit: Shrub **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Jan.-Dec. **Parts used:** Wood

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°10’62.2’’ N 78°70’00.0’’ E, 568 m, 06/06/2022, CM Manasvi, 126464 (FRLH)

Description: Leaves 3-5-foliolate; leaflets lanceate, acuminate. Flowers bluish-white, in pedunculate cymes.

Uses:

Wood: The dried stems are used to make sheds as it flexible.

188. ***Wrightia tinctoria*** (Roxb.) R.Br.

Local name: *Veppeli* **Family:** Apocynaceae

Habit: Tree **Habitat:** Rocky areas

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Bark & leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°04'08.4"N 78°33'45.8"E, 526 m, 04/06/2022, CM Manasvi, 126215 (FRLH)

Description: Leaves alternate, distichous, elliptic, acuminate. Flowers white, in dichotomously branched, terminal cymes. Follicles cylindric, jointed at apex. Seeds linear, silky-hairs at base.

Uses:

Wounds: The bark is ground and applied on the affected areas.

Wood: It is used to make toys.

Dye: The leaves produce a blue dye.

189. ***Xanthium strumarium*** L.

Local name: *Bonthe kai* **Family:** Asteraceae

Habit: Undershrub **Habitat:** Rocky areas

Phenology: Flowering & fruiting from Aug.-Mar. **Parts used:** Leaf

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Kaigal waterfall, 13°03'57.3"N 78°33'39.8"E, 471 m, 07/04/2022, CM Manasvi, 126255 (FRLH)

Description: Leaves serrate, alternate. Flowers green when young in terminal and axillary spikes. Fruits with 2 erect mucronate beaks covered with hooked prickles.

Uses:

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The leaves are used to make *Uppu Chakka*.

190. ***Zanthoxylum asiaticum*** (L.) Appelhans, Groppo & J.Wen

Local name: *Nerapu gandaru* **Family:** Rutaceae

Habit: Straggling Shrub **Habitat:** Dry deciduous forests

Phenology: Flowering & fruiting from Nov.-Jun. **Parts used:** Root & bark

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 12°86'64.2'' N 78°57'25.1'' E, 678 m, 08/07/2022, CM Manasvi & Arun Kumar N, 126485 (FRLH)

Description: Leaves trifoliate, sessile. Staminate or pistillate flowers in axillary or terminal panicles.

Uses:

***Janni* fever i.e., postpartum infections** (high fever, headache, arm & legs pain, eye pain, vomiting): An equal amount of root bark from *Capparis sepiaria*, *Bauhinia racemosa*, *Kleinia grandiflora*, *Pongamia pinnata, Benkara malabarica, Zanthoxylum asiaticum* and *Maclura spinosa* is dried and ground into a powder. It is roasted with oil in a *Lissemys punctata* shell. A lemon sized ball is orally administered with honey for 9 days in the morning and evening.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The bark is used to make *Uppu Chakka*.

Pogatu (foot & mouth disease or bleeding from the mammary glands or fever): The leaves are used to cure ethnoveterinary ailments.

191. ***Zizyphus oenoplia*** (L.) Mill.

Local name: *Pariki* **Family:** Rhamnaceae

Habit: Climbing shrub **Habitat:** Open scrub forests

Phenology: Flowering & fruiting from Jul.-Jan. **Parts used:** Fruit & wood

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: Kaigal waterfall, 13°03'56.5"N 78°33'53.4"E, altitude, 06/04/2022, CM Manasvi, 126243 (FRLH)

Description: Leaves alternate, ovate, base oblique, apex acuminate. Flowers pale green in axillary peduncled cyme.

Uses:

Food: The fruits are edible.

Wood: It is used in the household work.

192. ***Zizyphus xylopyrus*** (Retz.) Willd.

Local name: *Gotti* **Family:** Rhamnaceae

Habit: Shrub **Habitat:** Dry & moist deciduous forests

Phenology: Flowering & fruiting from May-Sept. **Parts used:** Fruit

Distribution: All districts of Andhra Pradesh (Pullaiah & Chennaiah, 1997).

Specimens examined: India, Andhra Pradesh, Chittoor district, Naniyalu, 13°01'40.0"N 78°36'35.5"E, 640 m, 08/06/2022, CM Manasvi, 126488 (FRLH)

Description: Young branches shoots rusty tomentose. Leaves alternate, ovate-elliptic. Flowers pale yellow, in axillary and extra-axillary cymes. Fruits globise, *c.* 1.5 cmacross, rusty tomentose.

Uses:

Food: The fruits are edible.

Uppu chakka (cleanses palate, improves digestion and increases milk production in cattle): The whole plant is used to make *Uppu Chakka*.

Chapter 4

4.1 Ethnographic profile of the Yanadi Tribe

The Yanadis are an indigenous tribe, that is reported in Andhra Pradesh in Nellore, Kurnool, Krishna, Kadapa, Chittoor East, and West Godavari district. According to the 2011 Census of India, their population is stated to be around 3.5 lakhs.

Figure 6. The Women of Yanadi Tribe

The women dress in a saree, blouse, and gold and silver jewellery on their ears, noses, and necks, while the men wear a shirt and *dhoti*. Their staple foods are *Ragi sangati*, white rice, vegetable curries prepared with tomato, potato, and brinjal, and they eat chicken, fish, and mutton once a week. They occasionally consume crab. Alcohol misuse is a concern, and men regularly drink during festivals and on the weekends.

Additionally, they eat fruits, tubers, leaves, and flowers that are available in the forest. Specifically, they eat the fruits of *Seetha phalamu (Annona squamosa), Gara Chettu (Canthium coromandelicum), Kalimi (Carissa carandas), Donda kaaya (Coccinia grandis), Pedda ullingi (Diospyros chloroxylon), Chinna ullingi (Diospyros ferrea), Tumuki (Diospyros melanoxylon), Nakka thoku (Ehretia microphylla), Chinna bikki (Gardenia gummifera), Pedda bikki (Gardenia latifolia), Gutthi (Huberantha cerasoides), Mabbu gotti (Lepisanthes tetraphylla), Pedda ali mannu (Memecylon umbellatum), Erra vaddi (Morinda coreia), Passiflora foetida, Papidi (Pavetta indica),Kamanchi (Solanum nigrum), Upichilli (Solanum torvum), Naeraedi maanu (Syzigium cumini), Pariki (Zizyphus oenoplia)* and *Gotti (Zizyphus xylopyrus).*

The tubers of *Godi Chettu (Aponogeton sp.)* and *Adavi ganchi gadda (Dioscorea oppositifolia).* The leaves of*Erri Konaganti akku* (*Alternanthera ficoidea*), *Ponna ganti kura* (*Alternanthera sessilis), Gurugu akku (Celosia argentea), Are (Bauhinia purpurea), Pachare (Bauhinia racemose), Mekka namatai (Ceropegia candelabrum* var. *biflora), Adavi sasulu (Cleome viscosa), Dusara theege (Cocculus hirsutus), Budama (Physalis angulate), Goratti (Scutia myrtina)* and *Peda meeraka chikki (Senegalia pennata).* The flowers of *Paal theega (Leptadenia reticulata)* and *Vippa mannu (Madhuca longifolia* var. *latifolia).* And, the stem of *Dabba Nalleri (Cissus quadrangularis).*

The Yanadis marry young, between the ages of 18 and 25. They usually have one to four kids. This concurs with the findings of Manoj (2014) that more than 60 percent of Yanadis married before 25 years of age. They typically marry within their community and village. They occasionally wed Yanadis from distant villages.

The Yanadis of the older generation are 89 % illiterate (Manoj, 2014). The younger generation is showing improvement, with the majority of kids attending government schools at least through the eighth grade.

The Yanadis work mostly in agriculture, animal husbandry (such as raising cattle, goats, and poultry), and as contract laborers. Villagers of the Koundinya Wildlife Sanctuary are also expert elephant watchers for the forest service. They also gather and sell non-timber forest products (NTFPs) in local markets such as the leaves of *Pulichinta akku* (*Asparagus racemosus),* fruits of *Chinna ullingi (Diospyros ferrea),* the dried phylloclades of *Kalli mannu (Euphorbia antiquorum),* the root tuber of *Gowramma gadda (Gloriosa superba),* the leaves of *Podapatri (Gymnema sylvestre),* the fruits of *Goratti (Scutia myrtina),* the seeds of *Mushti mannu (Strychnos nux-vomica),* the fruits of *Karakkaya (Terminalia chebula)* and the seeds of *Nemmiladi Oudaga (Vitex altissima).* They collect and sell honey made from the flowers of *Erra cheeki* (*Pterolobium hexapetalum)* and *Kommi chettu (Tarenna asiatica).* They have distinct names for different bee species such as *Pedda theneega* (*Apis dorsata*), *thora theneega* (*Apis cerana*) and *Komma theneega* (*Apis florea*).

They occasionally travel to surrounding rivers, ponds, and streams to go fishing. The Yanadis were good huntsmen and devoid of fear in the jungle. They used to hold licenses under the Arms Act and shot tigers, leopards, porcupines, and other small game. However, they have not hunted since the Wild Life (Protection) Act of 1972 was put into effect.

Every adult child contributes to the family by working to provide for them. The boys work outside to earn money, help in the farmland, or tend to the cattle and goats. While the girls contribute by taking care of the household chores.

Figure 7. Vaidhya Siddappa explains the medicinal properties of *Dodonaea viscosa*

The Yanadis are traditional folk healers with extensive knowledge of the forest and medicinal plants. Due to their proximity to forests and water bodies, they are renowned for having extensive knowledge of hunting and fishing techniques. Bioresources have played a significant role in their daily lives, and they can recognize, find, and sustainably extract these resources as well as utilize them for food and medical purposes. Typically, gathering resources entails a group effort, which also involves sharing traditional knowledge. Traditional knowledge is eroding over time as a result of many development imperatives. The Yanadis believe in evil spirits, magic, and witchcraft.

Figure 8. A stone slab that serves as a ‘temple’ and is decorated with vermilion and turmeric

The Yanadis generally reside in government provided housing which consists of 30 to 40 huts in a village. In the centre of the village, a ‘temple’ is constructed which generally consists of stone slab that is worshipped and adored with turmeric and vermilion.

Figure 9. Their houses are constructed with mud bricks and thatched with dried leaves and straw

Their homes are generally made of wooden sticks plastered with mud and thatched with leaves and straw. They have two sloping roofs that are usually made with *Nalla bolusu* (*Psydrax dicoccos) or Paal maanu (Manilkara hexandra) or Vabilli (Vitex negundo)* wood and covered with dried *Kobbari akku* (*Cocos nucifera*) leaves or grass or handmade tiles. It only has a few or one room, which is used for all domestic activities. The home amenities such as furniture, and cupboard is sparse. It is made from the wood of *Eduthili* (*Dichrostachys cinerea) or Tabissi (Holoptelea integrifolia) or Sundra mannu (Senegalia chundra)* or *Erra pollici (Sterculia urens).* The wood of *Natheregi mannu (Pterocarpus marsupium)* is used to make bed legs. To prevent rat infestation, surplus groundnuts or rice are kept in jute bags strung from the ceiling. There are no or few windows provided. The residence is ventilated through a single opening i.e., a door. The doors and windows are sometimes made of *Yerra madi (Terminalia arjuna).* Typically, a kitchen is provided outside the home. They utilize firewood and a stone stove to prepare food. Although, provisions for a toilet are made outside the house by the government. Most of the Yanadis, prefer to go in the fields. During the first coronavirus lockdown in India (Mar-May 2020), the Yanadis took refuge in the forest.

Figure 10. Brooms are made by grouping branchlets of *Azadirachta indica* together

Figure 11. The baskets are made of dried *Lantana camara* and used to store a variety of items

The domestic animals are kept either at the back side or one corner of the hut. The fences are made from the wood of *Ali (Memecylon edule), Baage* (*Albizia lebbeck*), *Narepu (Hardwickia binata), Bira (Drypetes sepiaria), Pulikampa (Lantana camara) and Yedru (Bamboo)*. The wood of *Vaddi (Dolichandrone atrovirens)* is used to make plows for cattle. They make carts from the wood of *Rala mannu* (*Cassia fistula*). They make baskets from dried *Pulikampa (Lantana camara)* and bunch together *Vepa* (*Azadirachta indica*) branchlets to make brooms.

Their historically indigenous practices of animal and nature worship, as described by Thurston (1909), Sreenath (1989), Raghavaiah (1944), and Sudhakar (2002) are no longer widely practiced. For the residents of Chittoor, the *Gangamma Jathara* is a well-known regional celebration. It happens every year in the whole month of May. The festival moves from one village to another on Sunday. The celebration involves praying to *Gangamma* goddess in the temple, lighting candles, and sacrificing chickens and goats. Most villages extend invitations to their closest friends and family members to attend their community festivities.

At night, the villagers congregate around the temple to sacrifice chicken or goat in honor of the *Gangamma* goddess. They prepare food together as a village in the morning. This

festival was adopted by the Yanadis from the nearby community. It is not a customary celebration for them.

When a girl has her first menstrual period, she is segregated into a separate tent. The hut's entrance is marked by the planting of a *Mushti mannu* (*Strychnos nux-vomica*) stick, which is believed to keep evil spirits out. The girl spends eight days in segregation. The hut is set on fire after the girl receives a purifying bath on the ninth day outside it.

There are a few folktales still in circulation in the Yanadi Community. According to one folktale, there is a village where the cattle are not fed well and not provided with care. Fed up with the herders, the cattle lament their mistreatment to the gods. The goddess Parvathi Devi is concerned and visits the village on *Sankranti*. Only to observe the cows fed and dressed lavishly for the occasion. She disputes their allegations. The peasants are delighted to deceive the goddess and escape with their neglect of the cattle.

4.2 Ethnoveterinary practices

A survey shows that 80% of the tribal population of Andhra Pradesh depends on traditional medicines for their animal health practices (Pragada et al., 2012). With limited access to forests (Rao, 2020) and a decrease in oral transmission to the younger generation - the extinction of Indigenous knowledge is an imminent threat (Sutherland, 2003) (Ramirez, 2007). This chapter documents the plant-based ethnoveterinary tradition called *Pogatu* & *Uppu Chakka* prepared by the Yanadi tribe of Andhra Pradesh.

Pogatu

Pogatu is a significant health resource in the region to treat common ailments. It is used to treat Foot & Mouth Disease (*Pokkulu*), Bleeding Blood from the Mammary Glands (*Yerra Sappi*), and Fever (*Jura*) in domesticated vertebrates like cattle, goats, and sheep. It is believed to keep the cattle from wandering off and following its course.

1. Plant collection

The herders from each village sustainably harvest Leaves, Resin, Bark, and Hemiparasite together from the nearby forest. These trips are undertaken during *Surya Nela* (November, December, and January). They believe that during this period, plants come to life and become medicinal. The combination of plants used in *Pogatu* varies on the village, accessibility to the forest, plant diversity in the forest, and traditional knowledge in the community. On average, a combination of 100 grams from 10 plants is used. We documented 40 medicinal plant species including native species such as *Boswellia serrata*, *Gmelina arborea,* and *Flacourtia indica*. From each plant, only 100 grams are sourced. They also sustainably harvest by not completely uprooting the plant.

Table 5. List of Medicinal Plants utilised in *Pogatu*

No.	Botanical name	Local name	Plant Part	Village
1	*Ailanthus excelsa* Roxb.	*Peethra mannu*	Resin	Mugilrevu

2	*Albizia amara* (Roxb.) B.Boivin	*Chiggare*	Bark	Mugilrevu, Vengamvaripalli, Kadathatapalli
3	*Andrographis elongata* (Vahl) T.Anderson	*Kanaka malli*	Leaf	Sandra
4	*Andrographis serpyllifolia* (Rottler ex Vahl) Wight	*Gola dani botlu*	Whole plant	Sandra, Kadathatapalli
5	*Azadirachta indica* A. Juss.	*Vepaku*	Leaf	KP banda, Kadathatapalli
6	*Boswellia serrata* Roxb. ex Colebr.	*Dhopam samrani*	Resin	Kaliguta, KP banda, Kadathatapalli
7	*Capparis zeylanica* L.	*Thotali theega*	Leaf	Sandra
8	*Cassia fistula* L.	*Rala mannu*	Leaf	Kaliguta
9	*Dendrocalamus strictus* Roxb.	*Veduru*	Dried sticks	Vengamvaripalli
10	*Dendrophthoe falcata* (L.f.) Ettingsh.	*Bajeneeka*	Leaf	Sandra, Kaliguta, Mugilrevu, Vengamvaripalli, Kadathatapalli
11	*Dodonaea viscosa* (L.) Jacq.	*Banderi*	Dried sticks	Sandra, Kaliguta, Mugilrevu, Vengamvaripalli
12	*Dysphania ambrosioides* (L.) Mosyakin & Clemants	*Kishuru akku*	Leaf	Naniyalu
13	*Endostemon viscosus* (Roth) M.R.Ashby	*Molaka chedi*	Leaf	Sandra
14	*Euphorbia antiquorum* L.	*Kalli Manu* (Female)	Phylloclade	Sandra
15	*Euphorbia deccanensis* V.S.Raju	*Jerri kal akku*	Whole plant	Sandra
16	*Evolvulus alsinoides* (L.) L.	*Suryakanthi*	Whole plant	Naniyalu
17	*Flacourtia indica* (Burm. f.) Merr.	*Pullelukka*	Leaf	Sandra
18	*Gardenia latifolia* Aiton	*Pedha bikki*	Leaf	Sandra
19	*Gmelina asiatica* L.	*Chinna adavi gummadi*	Leaf	Sandra, Kaliguta
20	*Gymnema sylvestre* (Retz.) R.Br. ex Sm.	*Padapathiri*	Leaf	Sandra, Kaliguta, Mugilrevu, Vengamvaripalli, Kadathatapalli
21	*Gymnosporia*	*Erra negari*	Whole plant	Sandra

	emarginata (Willd.) Thwaites			
22	*Hemionitis cordata* Roxb. ex Hook. & Grev.	*Guvenu akku*	Leaf	Sandra
23	*Justicia tranquebariensis* L.f.		Leaf	Kaliguta
24	*Pigea enneasperma* (L.) P.I.Forst.	*Chandrakanti*	Whole plant	Sandra
25	*Polygala arvensis* Willd.		Leaf	Sandra
26	*Psydrax dicoccos* Gaertn	*Nalla bolusu*	Leaf	Sandra
27	*Ruellia prostrata* Poir.	*Budakakkara*	Whole plant	Sandra
28	*Secamone emetica* (Retz.) R.Br. ex Schult.	*Paal akku*	Leaf	Kadathatapalli, Naniyalu
29	*Senna auriculata* (L.) Roxb.	*Thengedi*	Bark & Leaf	Sandra, KP banda, Kadathatapalli
30	*Syzygium alternifolium* (Wight) Walp.	*Naramamidi*	Bark & Leaf	Sandra
31	*Viscum orientale* Willd.	*Bajeneeka*	Leaf	Sandra, Kaliguta, Mugilrevu, Vengamvaripalli, Kadathatapalli
32	*Zanthoxylum asiaticum* (L.) Appelhans, Groppo & J.Wen	*Nerapu gandaru*	Leaf	Sandra, Vengamvaripalli, Naniyalu

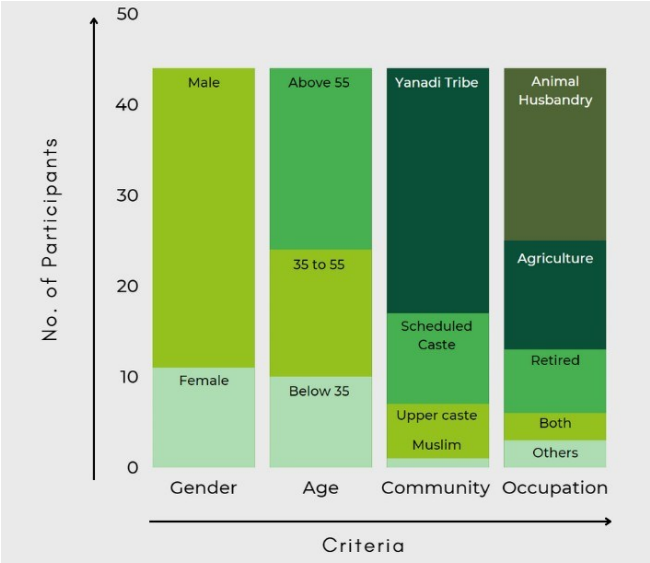
1. Preparation & Storage

The plant parts collected are not washed. They are finely ground in a *rokali* (wooden mortar and pestle) on the evening of the plant collection trip. Traditionally, women grind it for 4 to 5 hours. It is dried in the sun for three days. Except for *Maclura spinosa*, which is fresh, everything is dried. About 150 grams are stored in a box. It lasts up to a year when stored in a dry place. The powder is remade only during *Surya Nela*. Few Yanadis sell this powder to non-tribal people who use it to treat their domestic animals.

2. Practice

A pinch of Pogatu powder is used to treat the affected domestic animals. It is ignited with dried *Chiggare* (*Albizia amara*) or *Banderi* (*Dodonaea viscosa*) sticks in the animal shed. The fumes of the medicinal plants cure common ailments in *Natti* (Non-Descript Cattle i.e., native breed) cattle, goats, and sheep. Only the full moon, Sunday, and Tuesday are suitable days for fumigation.

Pogatu is an important medical resource in the area for treating common illnesses in domesticated animals. This traditional knowledge is practiced extensively by most livestock farmers in the area as visualized below. The pogatu powder is sold by a few Yanadi vaidyas to non-tribal livestock farmers. The women do not have in-depth plant knowledge but help in grinding the powder. Boys are involved in plant collection trips from the age of 18.



There is low degradation of traditional knowledge as the young and non-tribal communities have taken ownership. However, the practice still faces a threat due to the:

a) Accessibility to resources

The medicinal plants that were easily available in the surrounding forest currently require longer trips due to

(i) displacement of the tribal population
(ii) deforestation

b) Transition of livelihood from animal husbandry to agriculture

It is observed that there is a shift from animal husbandry to agriculture in the younger generation.

This is an inexpensive and efficient substitute for veterinary medicine, which is expensive. Thus, it is critical to conserving this indigenous knowledge.

Uppu chakka

Uppu chakka is a tradition that cleanses the palate, stimulates hunger, and increases milk production in cattle, sheep, and goats. It strengthens the immune system by protecting domesticated animals against sickness (including stomach and mouth boils), colds, coughs, and fever. It primarily removes the thick, white deposits that cause health to

deteriorate from the tongue. These domesticated animals are fed a mixture of powdered medicinal plant bark and rock salt.

1. Plant collection

The herders from each village sustainably harvest one inch of bark from the nearby forest. These trips are undertaken on *Sankranthi*. Usually, the Yanadis make one trip to harvest plant parts for *Pogatu* & *Uppu Chakka*. From each plant, they take 1 inch of bark/root bark or 100 grams of leaf. They harvest sustainably by leaving the bark on young trees and avoiding debarking from just one tree. Each participant keeps a 500-meter separation to avoid harvesting from the same plants. When it rains, the barks are not collected.

Table 6. List of Medicinal Plants utilized in *Uppu Chakka*

No.	Botanical name	Local name	Plant Part	Village
1	*Ailanthus excelsa* Roxb.	*Peethra mannu*	Bark	Mugilrevu
2	*Albizia lebbeck* (L.) Benth.	*Baage*	Bark	Kaliguta
3	*Andrographis serpyllifolia* (Rottler ex Vahl) Wight	*Golladani gotlu*	Root Bark	Sandra
4	*Azadirachta indica* A. Juss.	*Vepa manu*	Bark	Mugilrevu, Kadathapalli
5	*Boswellia serrata* Roxb. ex Colebr.	*Dhoopam*	Bark	Sandra, Kaliguta, Vengamvaripalli, KP banda, Kadathapalli
6	*Capparis sepiaria* L.	*Nalla uppili*	Bark	Sandra, Kaliguta, Vengamvaripalli, KP banda, Kadathapalli, Mugilrevu
7	*Cassia fistula* L.	*Rala mannu*	Bark	Sandra
8	*Celastrus paniculata* Willd.	*Ganga theega*	Whole plant	Vengamvaripalli, KP banda
9	*Ceriscoides turgida* (Roxb.) Tirveng.	*Bajji manga*	Bark	Mugilrevu, Kadathapalli
10	*Chloroxylon swietenia* DC.	*Billi*	Bark	Sandra, Kadathapalli
11	*Cissus quadrangularis* L.	*Dabba nalleri*	Whole plant	Sandra, Kaliguta, Mugilrevu, KP banda
12	*Citrus* spp.	*Adavi nimma*	Bark	Vengamvaripalli, Mugilrevu, Kadathapalli
13	*Cocculus hirsutus* (L.) W.Theob.	*Dusara theege*	Whole plant	Mugilrevu
14	*Commiphora caudata* (Wight & Arn.) Engl.	*Nethi mamadi*	Bark	Sandra

15	*Curculigo orchioides* Gaertn.	*Adavi taita gada*	Whole plant	Sandra
16	*Curcuma pseudomontana* J.Graham	*Adavi pasupu chettu*	Leaf	Sandra, Kaliguta, Kadathapalli
17	*Decalepis hamiltonii* Wight & Arn.	*Maredu gadlu*	Tuber	Vengamvaripalli, Mugilrevu, KP banda, Sandra, Kaliguta
18	*Diospyros montana* Roxb.	*Gotta gotta*	Bark	Mugilrevu
19	*Dolichandrone atrovirens* (Roth) K.Schum.	*Erra odhi*	Leaf	Sandra
20	*Drypetes sepiaria* (Wight & Arn.) Pax & Hoffman	*Beera manu*	Bark	Vengamvaripalli, Mugilrevu
21	Endostemon viscosus (Roth) M.R.Ashby	*Adavi kaprellu*	Whole plant	Mugilrevu, KP banda, Sandra
22	*Euphorbia deccanensis* V.S.Raju	*Jerri kal akku*	Whole plant	Sandra
23	*Euphorbia fusiformis* Buch.-Ham. ex D.Don	*Paal gada*	Root Bark	Sandra, Mugilrevu
24	*Ficus religiosa* L.	*Ragi*	Bark	Mugilrevu
25	*Ficus tsjakela* Burm.f.	*Jevru*	Bark	Sandra
26	*Gardenia gummifera L.f.*	*Chinna bikki*	Bark & leaf	Sandra, KP banda, Kadathapalli
27	*Gardenia latifolia* Aiton	*Pedda bikki*	Bark	Sandra, Vengamvaripalli, KP banda, Kadathapalli
28	*Givotia moluccana* (L.) Sreem.	*Thella pollici*	Leaf	Sandra, Kaliguta, Mugilrevu, Kadathapalli
29	*Gmelina asiatica* L.	*Chinna adavi gummadi*	Bark	Vengamvaripalli
30	*Grewia hirsuta* Vahl	*Pilidadu Chettu*	Whole plant	Kaliguta
31	*Gymnema sylvestre* (Retz.) R.Br. ex Sm.	*Podapatri*	Whole plant	Sandra
32	*Gymnosporia emarginata* (Willd.) Thwaites	*Erra negari*	Whole plant	Kaliguta,Vengamvaripalli, Kadathapalli
33	*Hemidesmus indicus* (L.) R.Br.	*Sugandra pala verlu*	Whole plant	Sandra, Kaliguta, Mugilrevu
34	*Hugonia mystax* L.	*Kaki beera*	Root Bark	Kadathapalli, Sandra

35	*Kleinia grandiflora* (Wall. ex DC.) N.Rani	*Koka naleka*	Leaf	Sandra, Mugilrevu
36	*Manilkara hexandra* (Roxb.) Dubard	*Paal maanu*	Bark	Kaliguta, Vengamvaripalli, KP banda, Kadathapalli
37	*Ocimum gratissimum* L.	*Adavi tulsi*	Whole plant	Vengamvaripalli, Mugilrevu
38	*Pongamia pinnata* (L.) Pierre	*Kanugu*	Bark	Mugilrevu, Kadathapalli
39	*Psydrax dicoccos* Gaertn	*Nalla bolusu*	Bark	Mugilrevu
40	*Pterocarpus marsupium* Roxb.	*Natheregi mannu*	Bark	Kaliguta, Vengamvaripalli, Mugilrevu, Kadathapalli
41	*Pterolobium hexapetalum* (Roth) Santapau & Wagh	*Erra cheeki*	Bark	Vengamvaripalli
42	*Ruellia prostrata* Poir.	*Budakakkara*	Whole plant	Sandra
43	*Scutia myrtina* (Burm.f.) Kurz	*Goratti*	Leaf	Kaliguta
44	*Senna auriculata* (L.) Roxb.	*Thengedi*	Bark	Kaliguta
45	*Sterculia urens* Roxb.	*Erra pollici*	Bark	Sandra, Kaliguta, Mugilrevu, Kadathapalli
46	*Tamarindus indica* L.	*Chinta mannu*	Bark & leaf	Sandra, Kaliguta
47	*Taprobanea spathulata* (L.) Christenson		Whole plant	Kaliguta, Naniyalu
48	*Terminalia chebula* Retz.	*Karakkaya*	Bark	Kaliguta
49	*Vanilla walkerae* Lindl. ex Wight	*Gondu Naleri*	Whole plant	Sandra, Kaliguta, KP banda
50	*Vincetoxicum indicum* (Burm.f.) Mabb.	*Megha theega*	Whole plant	Kaliguta
51	*Xanthium strumarium* L.	*Bonthe kai*	Leaf	Kaliguta
52	*Zanthoxylum asiaticum* (L.) Appelhans, Groppo & J.Wen	*Nerapu gandaru*	Bark	Sandra, Kaliguta, Mugilrevu, KP banda, Kadathapalli
53	*Zizyphus xylopyrus* (Retz.) Willd.	*Gotti*	Whole plant	Naniyalu

2. Preparation & Storage

Uppu chakka is prepared on the evening of the collection journey on *Sankranthi*. You brush off the soil and remove the muck instead of washing. Leaves and bark should be chopped into small bits. It is pounded in a *rokali* (wooden mortar and pestle) until it resembles a powder. Traditionally, women grind it for 4 to 5 hours. It is dried overnight and mixed with rock salt in the morning. The ratio of bark powder to rock salt varies from village to village:

Table 7. Ratio of Bark powder to rock salt utilized in *Uppu Chakka*

No.	Village	The ratio of bark to rock salt (kg)
1	Sandra	3:1
2	Kaliguta	1:1
3	Vengamvaripalli	1: 2.5
4	Mugilrevu	1:5
5	Kp banda	1:5

3. Practice

On the following day after *Sankranthi*, *Eddulu pandaga* (Cattle Festival) is celebrated. The cows are worshipped with camphor after being bathed, anointed with turmeric and kumkum, painted, and scraped horns.

The *Uppu Chakka* mixture is thoroughly rubbed on the tongue of the cattle. The cows are fed three balls (100g each). The sheep lap up the mixture spread on rocks because they enjoy the salt.

The domesticated animals are not allowed to drink water till late in the afternoon. Otherwise, they will catch a cold. They are allowed to graze after that.

4.3 Ethnobotanical Knowledge Index & Species Popularity Index

The Ethnobotanical Knowledge Index (Josef & Wyk, 2011) is a quantitative tool. It was used to rapidly measure the ethnobotanical knowledge of 60 individuals in the Yanadi tribe. The Yanadis were categorized into ages groups such as child, young adult, adult and senior (Table 8). They were shown a collection of 15 pictures that featured each plant's habit, flower, fruit, leaves, and stem (Table 9). Through active participation, their knowledge of local names and uses of the fifteen plants was verified.

Table 8. Age Range of Participants

No.	Age group	Age bracket
1.	Child	18 and below
2.	Young Adult	19 - 35 years

3.	Adult	36 - 54 years
4.	Senior	55 and above

Table 9. List of Medicinal plants shown to participants

No.	Botanical name	Local name	Category	Difficulty
1.	*Canthium coromandelicum* (Burm.f.) Alston	*Gara chettu*	Wild edible plant	Easy
2.	*Cissus quadrangularis* L.	Nelleri	Wild edible plant	Easy
3.	*Carissa carandas* L.	*Kalimi*	Wild edible plant	Easy
4.	*Vitex altissima* L.f.	*Nemmiladi Oudaga*	Wild edible plant	Difficult
5.	*Memecylon umbellatum* Burm.f.	*Pedda ali mannu*	Wild edible plant	Difficult
6.	*Cassia fistula* L.	*Rala mannu*	Uppu chakka	Easy
7.	*Andrographis serpyllifolia* (Rottler ex Vahl) Wight	*Golladani gotlu*	Pogatu	Medium
8.	*Euphorbia antiquorum* L.	*Kalli manu*	Pogatu	Easy
9.	*Gmelina asiatica* L.	*Chinna adavi gummadi*	Pogatu	Difficult
10.	*Hemidesmus indicus* (L.) R.Br.	*Sugandra pala / nanaari*	Uppu chakka	Easy
11.	*Sapindus emarginatus* Vahl	*Koogatti*	Shampoo	Easy
12.	*Leucas aspera* (Willd.) Link	*Thummi chettu*	Cattle aliment	Medium
13.	*Wrightia tinctoria* (Roxb.) R.Br.	*Veppeli*	Stomach pain	Medium
14.	*Cyanotis tuberosa* var. *adscendens* (Dalz.) C. B. Cl.	*Erra gogli gada*	Insect bite	Medium
15.	*Euphorbia tortilis* Rottler ex Ainslie	*Kalli manu*	Others	Easy

A questionnaire was used to capture answers in regard to these plants:

(1) Do they recognize the plant?

(2) Do they recall the name of the plant?

(3) Do they recall any uses of the plant (as food, medicinal, or for other practical applications)?

The biographical details of each participant were recorded with the origin/source of their information, e.g., parents or grandparents, etc. We were able to accurately record subtle nuances that would typically be lost during interpretation and translation since we used a common language (Telugu).

The interviews were transcribed and digitally recorded to ensure accuracy. The next step was to enter the data into a matrix of participants against species. Each cell includes three digits, namely (1) species known or not (2) name known or not (3) uses known or not, to which numerical values of 1, 2, and 3 were respectively allocated, with 0 indicating no knowledge.

Table 10. Criteria & Score for Ethnobotanical Knowledge Index

No.	**Criteria**	**Score**
1.	They cannot recognize the plant (**Not seen)**	0
2.	They can recognize the plant (**Seen)**	1
3.	They had a name (scientific and/or vernacular) for the plant (**Local name)**	2
4.	They knew of any uses for the plant (**Method)**	3

This leads to five possible total scores for each plant and each participant: **0** (0+0+0), **1** (1+0+0), **3** (=1+2+0), **4** (=1+0+3) or **6** (1+2+3). The last cell represents the sum of the three values (with a maximum value of 6).

By adding the scores for each participant, a quantitative measure of their knowledge of plants is obtained. We express each participant's Ethnobotanical Knowledge as a ratio of the maximum possible score of 90, obtained by multiplying the total number of plants (15) with the maximum score for each species (6). The value of this “Ethnobotanical Knowledge Index” (EKI) thus varies between 0 and 1. For example, the highest EKI in this study was 0.96 (as expected, for the most knowledgeable participant, Andaiappa).

Maximum possible score: Maximum possible score per plant * Number of plants

= 6*15 = 90

Ethnobotanical Knowledge Index: Sum of all individual scores for all species for the particular participant / Maximum possible score

=30 (example) / 90 = 0.3

The matrix also indicates the importance or popularity of each species, as measured by the number of participants who knows the plant and its uses. We express this "Species Popularity Index" (SPI) as a ratio of the maximum possible score of 600, obtained by multiplying the number of participants (60) with the maximum score for each species (6). For example, the highest SPI in this study was 0.96 for *Carissa carandas* L. (a popular, native fruit tree), followed by 0.86 for *Sapindus emarginatus* Vahl and 0.85 for the popular wild edible plant, *Canthium coromandelicum* (Burm.f.) Alston.

Maximum possible score: Maximum possible score per plant * Number of people

= 6*360 = 360

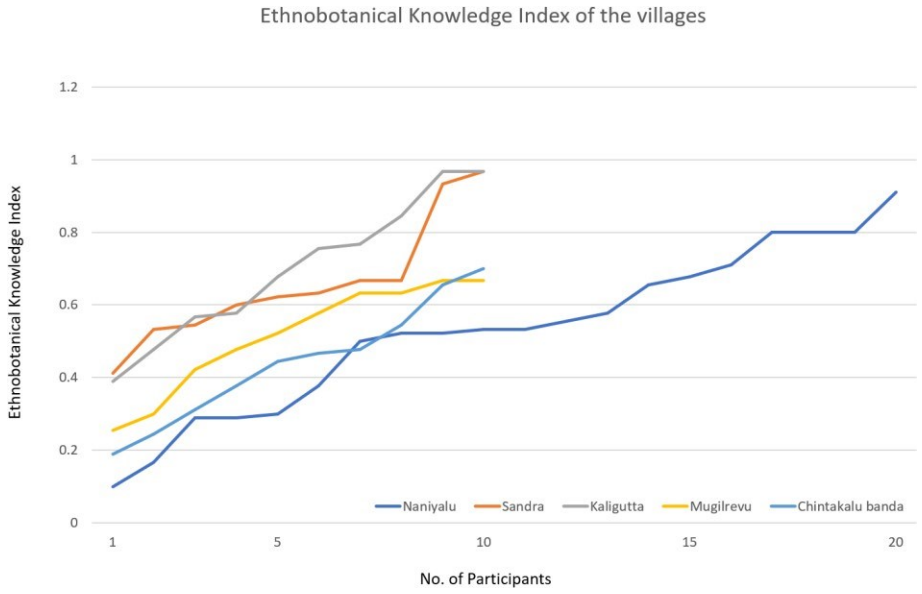
Species Popularity Index: Sum of all individual scores for the species across all participants / Maximum possible score

=300 (example) / 360 = 0.5

The following interpretations are made of the data:

1) **Ethnobotanical Knowledge Index based on the village**

The Ethnobotanical Knowledge Index of each participant is plotted in this graph according to their respective villages. Naniyalu has 20 participants, while Sandra, Kaligutta, Mugilrevu, and Chintakalu banda each have 10. The same size was considered as 10% of the population.

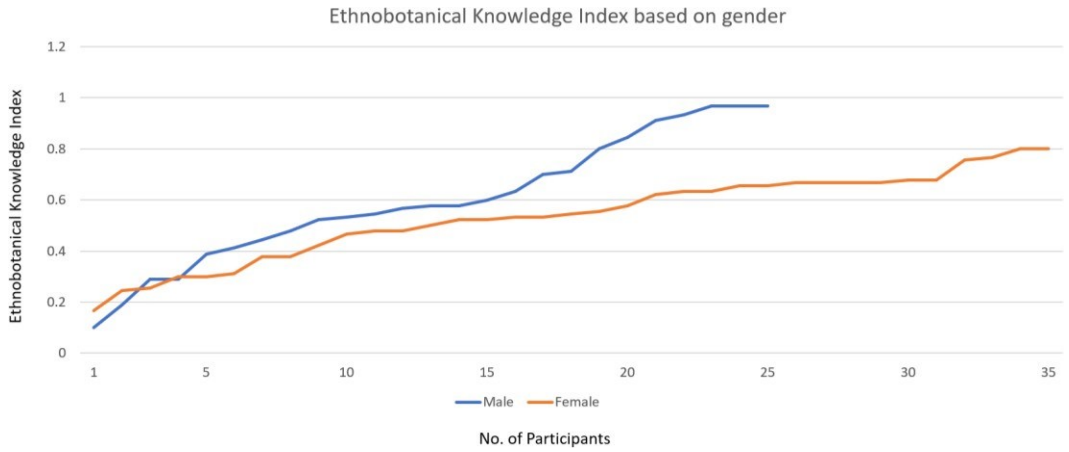


This graph demonstrates that Mugilrevu and Chintakalu banda's highest Ethnobotanical Knowledge Index is not as high as the others. With their highest Ethnobotanical Knowledge Index being 0.6 and 0.7 respectfully. These villages have less interaction with

nature and plants due to their greater distance from the forest and thus have lower Ethnobotanical Knowledge Index. While Naniyalu, Sandra, Kaligutta have the highest score of 0.9 for the Ethnobotanical Knowledge Index. These villages reside beside thriving forest ecosystems that have a somewhat strong influence on the local community.

2) Ethnobotanical Knowledge Index based on Gender

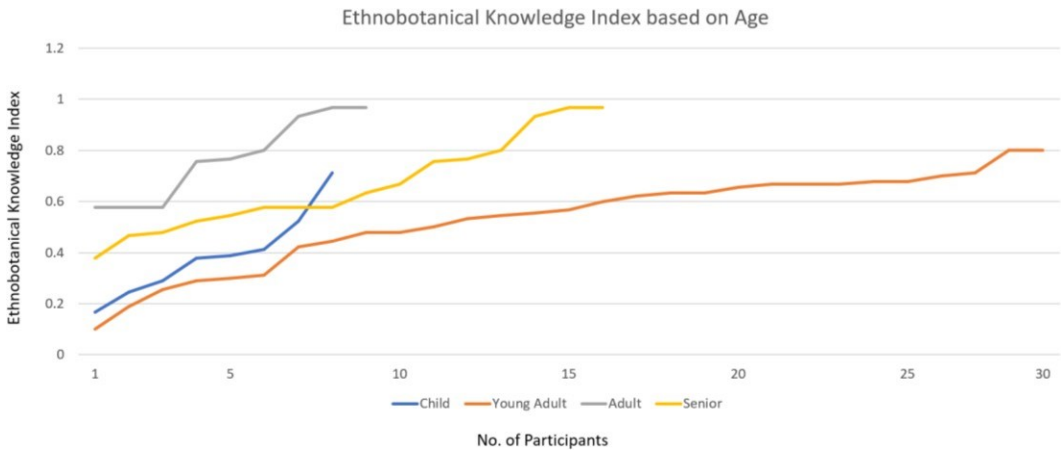
The Ethnobotanical Knowledge Index in this graph is based on the participant's gender, namely on male and female participants. The highest Ethnobotanical Knowledge Index is, respectively, 0.9 and 0.8.



The Ethnobotanical Knowledge Index of women is typically lower than that of men, as shown in the graph. This can be attributed to the culture and way of life, where men associate with the forest from a young age for tasks like gathering firewood and grazing for cattle or goats. Women, in contrast hand, are primarily restricted to household work.

3) Ethnobotanical Knowledge Index based on Age

In this graph, we have the Ethnobotanical Knowledge Index based on Age of the participants. The categories are Child (18 and below), Young Adult (19 - 35 years), Adult (36 - 54 years) and Senior (55 and above).



The highest Ethnobotanical Knowledge Index is 0.7, 0.8, 0.9 and 0.9 respectively.

Chapter 5

5.1 Discussion & Conclusion

The present study is mainly focused on the following three important aspects, survey, documentation, and enumeration of the medicinal plants used by Yanadi tribe inhabiting Kaigal, Chittoor District, Andhra Pradesh, India.

As an outcome of the present investigation 192 plants of medicinal use have been identified and documented. The documented plants belong to 21 families of the plant kingdom. The majority belong to the families of Fabaceae, Apocynaceae, Euphorbiaceae, Rubiaceae, Acanthaceae, Lamiaceae, Asteraceae, Malvaceae, Amaranthaceae and Phyllanthaceae with 22 plants belonging to the Fabaceae.

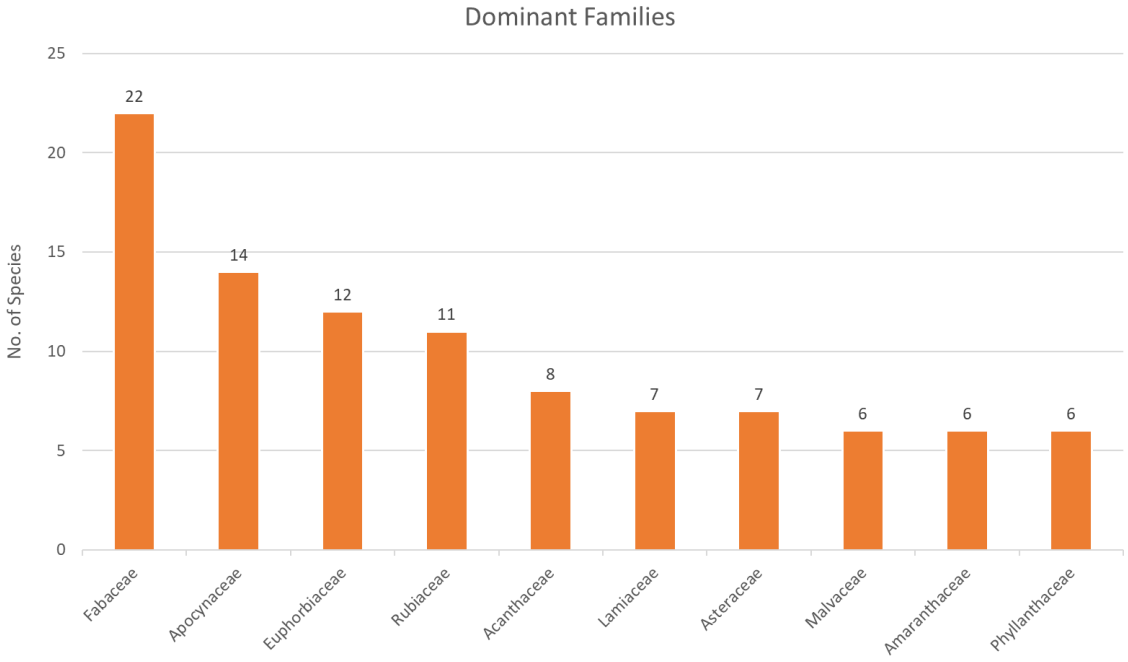


Figure 12 Dominant Plant Families

The listed medicinal plants belong to the habit of trees, shrubs, herbs, and climbers (Figure 13). 56 of the gathered plants go under each of the two categories: herbs and shrubs, both of which are widely used. Trees came next, with 52 species and just 14 climbers. It was also intriguing to observe the use of hemi-parasites.

Bark is mostly used by the Yanadis to make remedies (Figure 14). They turn it into a powder by drying it. It has been noted that for 104 species bark is employed. Moreover, 24 species of the root bark are extensively used. The next is leaf, which uses 101 different species. With only 11 species, the stem is seldom ever used. The use of latex with 22 species is fascinatingly widespread. In 36 species, the whole plant is utilised. This

typically happens with herbs when the entire plant is crushed and turned into a paste.

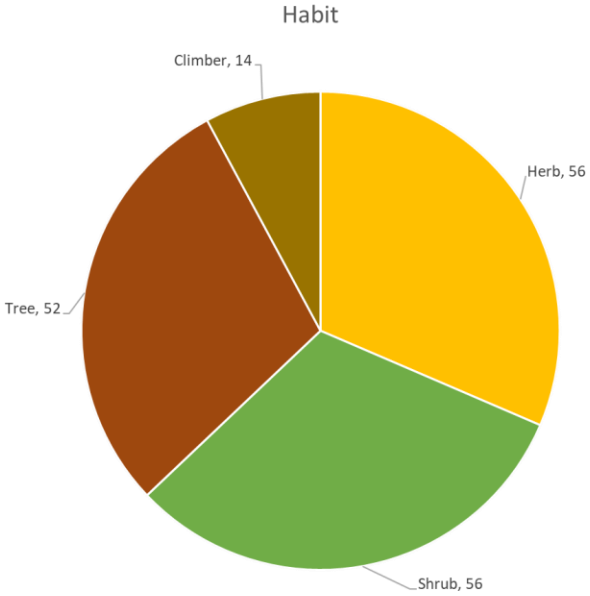


Figure 13 Habit of Plants (Tree, Shrub, Herb and Climber)

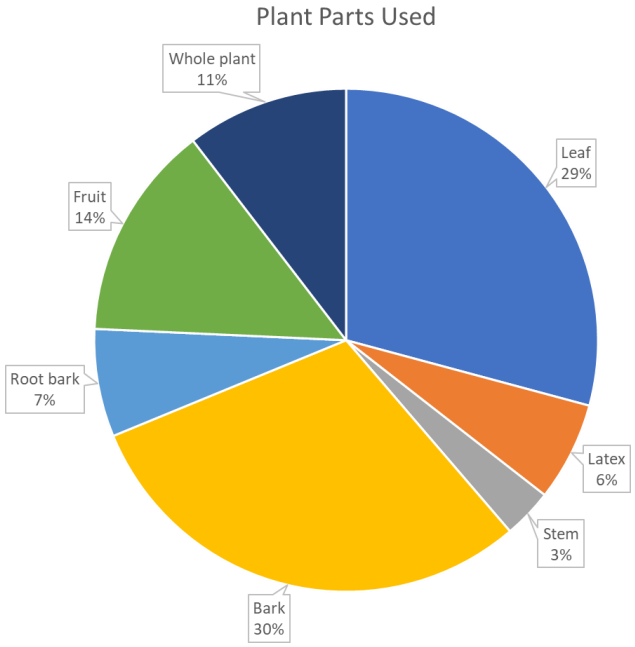


Figure 14 Plant Parts used

The listed medicinal plants were used to treat various human illnesses. The Yanadis treat ethnoveterinary ailments like fever, profuse bleeding, stomach aches, indigestion, diarrhoea, and obesity with 85 different plants. In the past, the Yanadis were renowned for their cures for snakebites. Only 6 species, nevertheless, were identified. This was in regular practice. For scorpion bites, 3 plant species were discovered, and 4 for insect bites. With 46 species, the use of wild edible plants is moderately high. They treat fever, colds, and coughs with 54 herbs. Diabetes can be reduced by using 4 herbs. 29 species

were employed as analgesics to relieve rheumatic pain, headache, body pain, chest pain and migraine. 11 plants for healing eczema, cut wounds, and other skin condition.

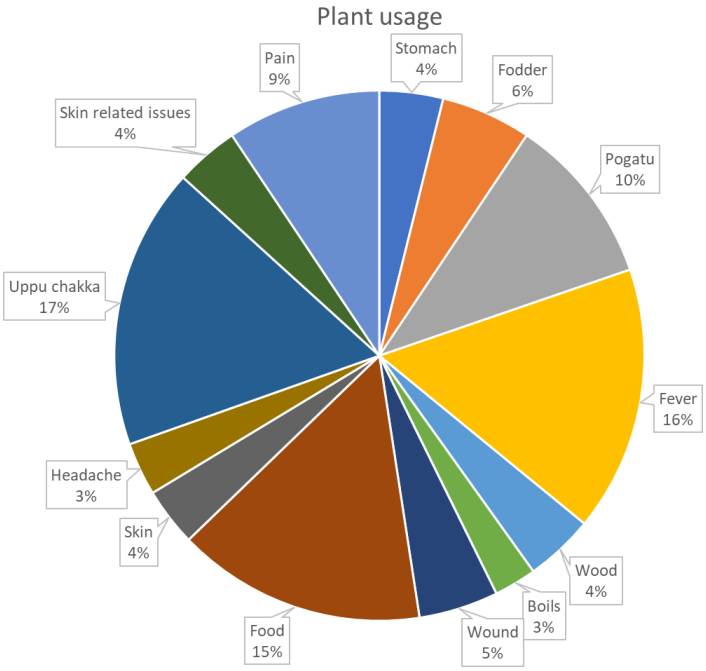


Figure 15 Plant usage

5.2 Limitations of the Study

The ethnobotanical data was obtained orally during forest walks from Yanadi tribals. The Yanadis regularly practice a very small portion from all the knowledge shared. Their knowledge of most medicinal plants remains primarily theoretical and is derived from oral history. Although the medicinal uses were cross-checked with other sources of traditional healers and other villages. There is a need to validate this information clinically.

5.3 Scope for Further Research

Further exploration of the medicinal properties of *Pogatu* & *Uppu Chakka*:

The present investigation found that *Pogatu* & *Uppu Chakka* are unique medicinal resources utilized to treat veterinary aliments in this region. Further research could be conducted on the medicinal plants to isolate and test the active compounds and investigate their potential uses in modern veterinary medicine.

Investigation of the degradation of knowledge in the Yanadi community:

The present research revealed that the oral history and ethnobotanical knowledge of the Yanadi tribe is slowly degrading in the younger generation. Further research could explore this tenuous relationship with plants and the tribe including their cultural usage in rituals and ceremonies.

Investigation of the ecological relationship between *Psydrax dicoccos* and galls:

There is an abundance of galls were observed in *Psydrax dicoccos.* This species abundantly hosts plant galls. However, the galls do not have medicinal value as observed by the Yanadi Tribe. Further research could explore these relationships in more detail and investigate their potential significance for conservation and biodiversity.

Appendices

Appendix 1. Interaction with Yanadi Tribe, A - Learning about the therapeutic uses of *Andrographis serpyllifolia* from Venkat Ramanan and Dasappa; B - Field Walk with Kanappa; C – Understanding about Gangamma Jatra, Ugadi Pandiga and other festivals from Subbarya Anna; D – Discussion with the Yanadi & non-Yanadi animal rearers about Uppu Chakka and Pogatu in KP banda; E – Discussion in Vengamvaripalli; F – Learning about the medicinal uses of *Senna auriculata* from Thangamma

Appendix 2. Yanadi Tribe Men & Women, A – Siddappa thatha showcases his musical instruments; B – School Cook; C – Thatha & Awwa chatting about festivals; D – Braiding of coconut leaves for the hut roof by Yanadi women; E – Yanadi women with her pet Squirrel; F – Rajani having Ragi Sangati before school

Appendix 3. Variety of Fences

Appendix 4. Forest Products utilized by the Yanadi Tribe

Appendix 5. Yanadi Tribal Villages

Appendix 6. Kaigal Forest

Appendix 7. Naniyalu forest

Appendix 8. Sandra forest

Appendix 9. Medicinal Plants, A - *Psydrax dicoccos*; B - *Pterocarpus marsupium;* C - *Cleistanthus collinus; D - Psydrax dicoccos* with galls*;* E - *Phyllanthus polyphyllus;* F - *Chloroxylon swietenia;* G - *Catunaregam spinosa;* H - *Gmelina asiatica*

Appendix 10. Medicinal Plants, A - *Ceropegia candelabrum* var. *biflora*; B - *Cadaba fruticosa;* C - *Opuntia dillenii; D - Wrightia tinctoria;* E - *Gymnosporia emarginata;* F - *Vincetoxicum indicum;* G - *Lepisanthes tetraphylla;* H - *Sterculia urens*

Appendix 11. Interaction with the Yanadi Tribe, A – Dasappa sharpening a stick to gather herbarium specimens; B – Field assistant Jaypalappa collecting herbarium specimens*;* C – Kanappa and Subramanyan describe the benefits of *Jatropha curcas; D* – Collecting flowering *Catunaregam spinosa* specimens*;* E - Venkatramanan anna collecting fruits from *Gardenia gummifera;* F – Kannappa foraging *Phyllanthus emblica* fruits*;* G -

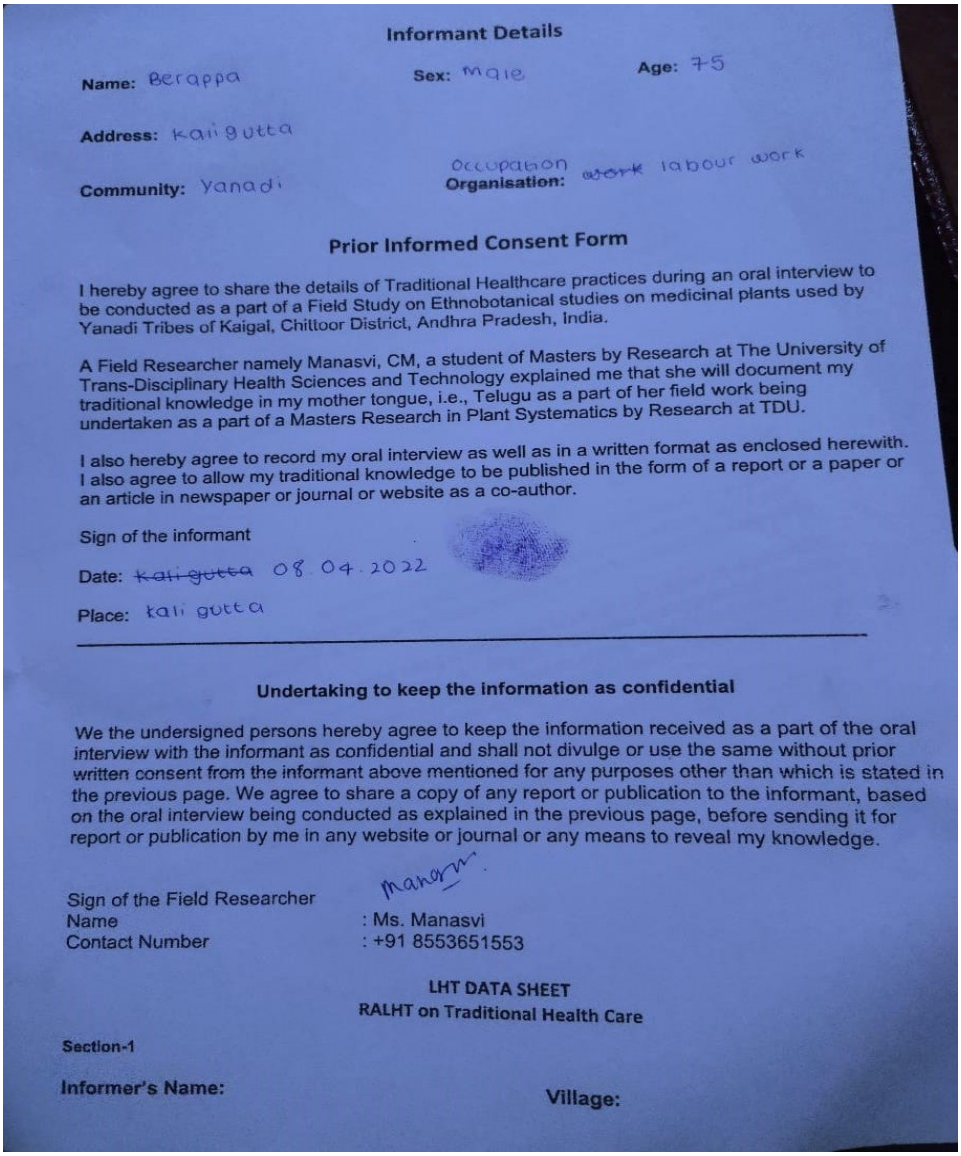
The shell of *Lissemys punctata* is used to mix dried medicinal plants by Thangamma*;* H – Siddappa Thatha explaining the uses of *Aerva lanata;* I – Thangamma displays her medicinal powders; J – A villager assists in gathering herbarium specimens; K – Pogatu powder preparation in Rokali

Appendix 12. To prevent rat infestation, surplus groundnuts or rice are kept in jute bags strung from the ceiling

Appendix 13. Sankranti Pandiga

Appendix 14. The domestic animals are kept either at the back side or one corner of the hut. The fences are made from the wood of *Ali (Memecylon edule), Baage* (*Albizia lebbeck*), *Narepu (Hardwickia binata), Bira (Drypetes sepiaria), Pulikampa (Lantana camara) and Yedru (Bamboo)*

Appendix 15. Neem leaves are burnt in the evening to keep mosquitoes away



Informant Details

Name: Berappa **Sex:** male **Age:** 75

Address: kaigutta

Community: Yanadi **Occupation Organisation:** ~~work~~ labour work

Prior Informed Consent Form

I hereby agree to share the details of Traditional Healthcare practices during an oral interview to be conducted as a part of a Field Study on Ethnobotanical studies on medicinal plants used by Yanadi Tribes of Kaigal, Chittoor District, Andhra Pradesh, India.

A Field Researcher namely Manasvi, CM, a student of Masters by Research at The University of Trans-Disciplinary Health Sciences and Technology explained me that she will document my traditional knowledge in my mother tongue, i.e., Telugu as a part of her field work being undertaken as a part of a Masters Research in Plant Systematics by Research at TDU.

I also hereby agree to record my oral interview as well as in a written format as enclosed herewith. I also agree to allow my traditional knowledge to be published in the form of a report or a paper or an article in newspaper or journal or website as a co-author.

Sign of the informant

Date: ~~kaligutta~~ 08.04.2022

Place: kali gutta

Undertaking to keep the information as confidential

We the undersigned persons hereby agree to keep the information received as a part of the oral interview with the informant as confidential and shall not divulge or use the same without prior written consent from the informant above mentioned for any purposes other than which is stated in the previous page. We agree to share a copy of any report or publication to the informant, based on the oral interview being conducted as explained in the previous page, before sending it for report or publication by me in any website or journal or any means to reveal my knowledge.

Sign of the Field Researcher Manasvi

Name : Ms. Manasvi

Contact Number : +91 8553651553

LHT DATA SHEET

RALHT on Traditional Health Care

Section-1

Informer's Name: **Village:**

Appendix 16. Consent Form

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